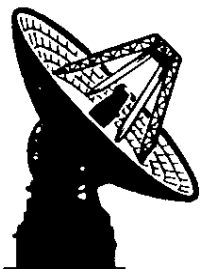




## Resource Allocation Review



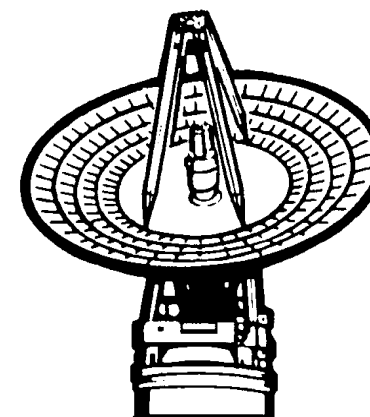
# Deep Space Network Customer Forum

**Version 2.0 Final**

**2008 - 2010**

**RAPS Team**

**September 20, 2007**





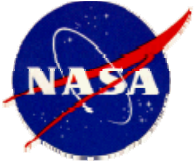
# Resource Allocation Review



---

## Agenda

- ◆ Loading Study
- ◆ Periods of Contention
- ◆ Events, Recommendations, and Analyses



# Resource Allocation Review



## Loading Study

- ◆ Assumptions
- ◆ Project Changes and Changes in DSN Resource Support Request
- ◆ New Projects
- ◆ Deleted Projects
- ◆ DSN User / Mission Planning Set
  - Ongoing / Approved Projects
  - Advanced / Planning Projects
- ◆ Major DSN Downtimes by Date
- ◆ IND Resource Implementation Planning Matrix



# Resource Allocation Review

## Assumptions

- ◆ DSS-16 is in an indeterminate downtime as of February 1, 2006. The previous designation of 26M meaning DSS-16,46,66 will now equate to DSS-46,66. All nominal support previously assigned to DSS-16 has been reassigned to DSS-27 or DSS-24. DSS-16 will provide committed support for launches and special activities after February 1, 2006. As of September 29, 2008 DSS-46 and DSS-66 are scheduled to be taken down for an indeterminate length of time.
- ◆ The following Project/User requirements were not considered during the analysis process and will be negotiated during the Mid-Range Scheduling Process:
  - ATOT – Development (4 - 8 hour supports); Mission (8 hour supports)
  - DSN - (Antenna and ZDD Calibrations)
  - GBRA - Guest Observations (4 – 8 hour supports); PRA-GAVT (all supports); Host Country 4 – 8 hour supports
  - GSSR - (GODR supports at DSS-14/15)
  - MER 1 & 2 - Uplink and Downlink MSPA passes
  - RFC - Clock Sync and CAT M&E S/X and X/Ka-band VLBI
  - Space Geodesy Programme



# Resource Allocation Review Loading Study

## Project Changes Since February 2007

---

- ◆ **Advanced Composition Explorer**
  - 2008: Changed supports from 2 (3.5 hour) passes per week to 3 (1 hour) passes in weeks 40 – 48 . Decreased 3 (3.5 hour) passes per week in weeks 40 – 48 to 2 (3.5 hour passes) per week.
- ◆ **Chandrayaan - 1**
  - Added mission acronym CH1.
- ◆ **Cluster II**
  - 2008: Beginning week 40 added 4 (2 hour) passes per week at DSS-34/45.
  - 2009: Continued with additional passes per week at DSS-34/45 during DSS-43 downtime (to week 13).
- ◆ **Dawn**
  - Due to launch date changes from June/July to September, the updated events and requested supports are pending at this time.
- ◆ **EPOXI (Deep Impact)**
  - Support added for discovery mission.
- ◆ **Goldstone Solar System Radar**
  - 2008: Added 3 (3 hour) passes to weeks 01 & 49 for Venus GBT. Added 3 (3 hour) passes to weeks 25 & 27 for Mercury GBT.
  - 2009: Added 3 (3 hour) passes to weeks 03 & 21 for Mercury GBT. Added 3 (3 hour) passes to weeks 21 & 32 for Venus GBT .



# Resource Allocation Review Loading Study

## Project Changes Since February 2007

---



- ◆ **James Webb Space Telescope**
  - End of Prime Mission changed from 07/31/2016 to 07/31/2018.
- ◆ **Juno**
  - Launch date changed from 08/01/2011 to 08/11/2011.
  - End of Prime Mission date changed from 10/18/2017 to 08/11/2017.
- ◆ **Kaguya (SELENE)**
  - Launch date changed from 07/18/2007 to 09/14/2007.
  - End of Prime Mission changed from 09/26/2007 – 10/25/2007
  - Changed mission name from SELENE to Kaguya
- ◆ **Kepler**
  - Launch date changed from 11/01/2008 to 02/16/2009.
  - End of Prime Mission changed from 12/01/2012 to 12/31/2012.
  - 2010: Added supports from weeks 01 – 39.
- ◆ **Lunar Reconnaissance Orbiter**
  - Launch date changed from 10/31/2008 to 10/28/2008.
- ◆ **Lunar Crater Observation and Sensing Satellite**
  - Launch date changed from 10/31/2008 to 10/28/2008.
  - End of Prime Mission date changed from 01/31/2009 to 02/05/2009.
  - Added mission acronym LCR.



# **Resource Allocation Review Loading Study**

## **Project Changes Since February 2007**

---

- ◆ **Magnetospheric Multiscale**
  - Mission added to Advanced Mission Set with a Launch on 10/01/2014 and End of Prime Mission on 12/31/2016
- ◆ **Mars Express Orbiter**
  - End of Extended Mission Changed from 12/31/2008 to 12/31/2010
  - 2008: Added a daily 8 hour pass for Phoenix Relay in weeks 20 - 37.
- ◆ **Mars Reconnaissance Orbiter**
  - Replaced all 2 (8 hour) 34M passes for Ka Ops Demo with 2 (8 hour) Prime Science supports.
  - Relaxed the elevation constraint for 34M stations from 20 degrees to now 10 degrees.
- ◆ **Mars Science Laboratory 2009**
  - 2009: Increased Cruise supports beginning week 42, from 3 (4 hour) passes per week to 5 (8 hour) passes.
  - 2010: Continued with increased Cruise coverage through week 21.



# Resource Allocation Review Loading Study

## Project Changes Since February 2007



### ◆ MESSENGER

- 2008: Changed Flyby DDOR supports from 8 passes to 4 passes in week 02, added 4 Flyby DDOR passes per week in weeks 03 – 04. Changed TCM support to add 2 (8 hour) passes at 70m in week 41. Increased from 1 (8 hour) pass to 4 (8 hour) passes at DSS-14,63 for Flyby 2.
- 2009: TCM moved from week 15 to week 17, 2 (8 hour) passes. Added 4 DDOR supports in week 40. Added 10 (8 hour) 70m passes to week 40 for Flyby. Increased Flyby support in week 41 from 2 (8 hour) passes at DSS-43,63 to 4 (8 hour) passes.

### ◆ NExT (Stardust)

- Support added for discovery mission.

### ◆ Opportunity (Mars Exploration Rover – B)

- 2008: Added 8 hour passes for Phoenix Relay, 1 (8 hour) pass in week 20, 7 (8 hour) passes in weeks 21 - 37.
- 2009: Extended supports through end of year, beginning week 40.
- 2010: Added supports from weeks 01 – 39.

### ◆ Phoenix

- Launch date changed from 08/03/2007 to 08/04/2007.

### ◆ Polar

- End of Extended Mission changed from 10/01/2007 to 04/15/2008.





# **Resource Allocation Review Loading Study Project Changes Since February 2007**

---



- ◆ **Rosetta**
  - 2008: Added 1 (8 hour) pass in weeks 05 – 06 for Cruise at DSS-24,34.
- ◆ **SOHO**
  - 2007: HSO Moved from weeks 37 – 45 of 2007 to weeks 49 of 2007 - 05 of 2008
  - 2008: Added on additional 70m High-rate Keyhole coverage pass in week 08.
  - 2009: Increased 70m High-rate Keyhole coverage from 12 (4 hour) passes to 14 (4 hour) passes in weeks 06, 19, 32, and 45.
- ◆ **Spirit (Mars Exploration Rover – A)**
  - 2009: Extended supports through end of year, beginning week 40.
  - 2008: Added 8 hour passes for Phoenix Relay, 1 (8 hour) pass in week 20, 7 (8 hour) passes in weeks 21 - 37.
  - 2010: Added supports from weeks 01 – 39.
- ◆ **Stereo Ahead**
  - 2008: Reduced 7 (4 hour) Prime Science passes with 6 (4 hour) passes in weeks 02, 14, 28 & 40, added 1 (7 hour) HGA CAL pass for weeks 02, 14, and 28, and 1 (8 hour) HGA CAL pass in week 40. Added 7 (3 hour) SECCHI Campaign passes in weeks 02, 03.
  - 2009: Reduced 7 (4 hour) Prime Science passes with 6 (4 hour) passes in weeks 2, 14, 28 & 40, and added 1 (8 hour) HGA CAL pass for same weeks.



# Resource Allocation Review Loading Study

## Project Changes Since February 2007

---

### ◆ Stereo Behind

- 2008: Reduced 7 (4 hour) Prime Science passes with 6 (4 hour) passes in weeks 02, 14, 28 & 40, added 1 (7 hour) HGA CAL pass for weeks 02, 14, and 28, and 1 (8 hour) HGA CAL pass in week 40. Added 7 (3 hour) SECCHI Campaign passes in weeks 02, 03.
- 2009: Reduced 7 (4 hour) Prime Science passes with 6 (4 hour) passes in weeks 2, 14, 28 & 40, and added 1 (8 hour) HGA CAL pass for same weeks.

### ◆ Voyager 1

- End of Extended Mission changed from 12/31/2010 to 12/31/2013
- 2008: Additional supports added for various Sequence activities. Added 1 (6 hour) pass at DSS-14, and 1 (6 hour) pass at DSS-14,15,25 in weeks 01 – 02. Added 2 (6 hour) passes at DSS-14 in weeks 14, 27, and 40. Added 2 (6 hour) passes at DSS-14,15,25 in weeks 14, 22 and 40. Added 2 (5 hour) passes for DTR Array in weeks 02 and 33.
- 2009: Additional supports added for Sequence activities. Added 1 (6 hour) pass at DSS-14 and 2 (6 hour) passes at DSS-14,15,25 in week 02. Added 2 (6 hour) passes at DSS-14, and 2 (6 hour) passes at DSS-14,15,25 in weeks 15, 28, and 40. DTR Array supports – 2 (5 hour) passes in weeks 12 and 39. Added 1 (7 hour) MAGROL Array passes in weeks 44, 45. Added 1(7 hour) ASCAL Array pass added in week 45.



# Resource Allocation Review

## Loading Study

### Project Changes Since February 2007

---



#### ◆ Voyager 2

- End of Extended Mission changed from 12/31/2010 to 12/31/2013
- 2008: Added 1(4 hour) pass at DSS-34 for GYROS in week 03. Added 1(16 hour) pass for HYBIC SWAP at DSS-43 in week 04. Added BLF supports – 2 (4 hour) passes at each DSS-34 and DSS-45 in weeks 05, 18, 31 and 44. Added 1 (4 hour) pass for BLF at each DSS-34 and DSS-45 in weeks 06, 19, 32, and 45. Added 2 (5 hour) passes for Sequence activity at each DSS 43 and DSS-45 in weeks 06, 19, 32 and 45.
- 2009: Added BLF supports – 1 (4 hour) pass at each DSS-34 and DSS-45 in weeks 05, 18, 31 and 44. Added 2 (4 hour) passes for BLF at each DSS-34 and DSS-45 in weeks 06, 19, 32, and 45. Added 2 (5 hour) passes for Sequence activity at each DSS 43 and DSS-45 in weeks 07, 20, 33 and 46.

#### ◆ Wind

- 2008: Changed TCMs – 1 (3 hour) pass in weeks 27, 40 moved to weeks 24, 37 and added 1 (3 hour) pass to week 50.
- 2009: Added 1 (3 hour) TCM pass in week 40.

#### ◆ WMAP

- 2008: Moved 3 of 7 passes per week at DSS-14/34/63 to DSS-34 in weeks 40 – 52 due to DSS-43 downtime.



# Resource Allocation Review

## Loading Study

### New Projects Since February 2007

Project	Acronym	Launch or Start	EOPM	EOEM
EPOXI (Deep Impact)	DIF	07/03/07	01/04/09	---
NExT (Stardust)	SDU	07/03/07	02/24/11	---
Magnetospheric Multiscale	MMS	10/01/14	12/31/16	---



# Resource Allocation Review Loading Study



**Removed/Unsupported Projects Since February 2007**

---

Project	Acronym	Launch or Start	EOPM	EOEM
None				



# Resource Allocation Review Loading Study

## DSN User / Mission Planning Set

### – Ongoing / Approved Projects –

Project	Acronym	Launch or Start	EOPM	EOEM
DSN Antenna Calibration	DSN	--	--	--
DSS Maintenance	DSS	--	--	--
DSN ZDD Calibration	DSN	11/01/04	--	--
European and Global VLBI Systems	EGS	--	--	--
Ground Based Radio Astronomy	GBRA	--	--	--
Reference Frame Calibration (Cat M&E and Clock Sync)	DSN	--	--	--
Space Geodesy	SGP	--	--	--
Voyager 2	VGR2	08/20/77	10/15/89	12/31/13
Voyager 1	VGR1	09/05/77	12/31/80	12/31/13
Goldstone Solar System Radar	GSSR	04/01/85	--	--
Ulysses	ULYS	10/06/90	09/11/95	03/30/08
Geotail	GTL	07/24/92	07/24/95	10/01/08
Wind	WIND	11/01/94	11/01/97	10/01/11
SOHO	SOHO	12/02/95	05/02/98	10/01/11
Polar	POLR	02/22/96	08/23/97	04/15/08
Advanced Composition Explorer	ACE	08/25/97	02/01/01	10/01/13
Cassini	CAS	10/15/97	06/30/08	06/30/10



# Resource Allocation Review Loading Study

## DSN User / Mission Planning Set

### – Ongoing / Approved Projects –

Project	Acronym	Launch or Start	EOPM	EOEM
Chandra X-Ray Observatory	CHDR	07/23/99	07/24/09	07/24/14
Imager for Magnetopause-to-Aurora Global Exploration	IMAG	03/25/00	05/30/02	TBS
Cluster 2 - S/C #2 (Samba)	CLU2	07/16/00	02/15/03	09/30/10
Cluster 2 - S/C #3 (Rumba)	CLU3	07/16/00	02/15/03	09/30/10
Cluster 2 - S/C #1 (Salsa)	CLU1	08/09/00	02/15/03	09/30/10
Cluster 2 - S/C #4 (Tango)	CLU4	08/09/00	02/15/03	09/30/10
Mars Odyssey 2001	M01O	04/07/01	08/24/04	12/31/10
Wilkinson Microwave Anisotropy Probe	WMAP	06/30/01	10/01/03	09/30/10
Advanced Tracking and Observational Techniques (ATOT)	ATOT	02/01/02	12/31/08	- - -
International Gamma Ray Astrophysics Lab	INTG	10/17/02	12/18/04	12/16/10
Hayabusa (MUSES - C)	MUSC	05/09/03	06/10/10	TBS
Mars Express Orbiter	MEX	06/02/03	02/11/06	12/31/10
Spirit (Mars Exploration Rover - A)	MER2	06/10/03	04/06/04	09/30/08
Opportunity (Mars Exploration Rover - B)	MER1	07/07/03	04/27/04	09/30/08
Spitzer Space Telescope (SIRTF)	STF	08/25/03	05/31/09	05/31/14
Rosetta	ROSE	02/26/04	12/31/15	- - -
MESSENGER	MSGR	08/03/04	03/19/12	- - -



# Resource Allocation Review Loading Study DSN User / Mission Planning Set

## – Ongoing / Approved Projects –

Project	Acronym	Launch or Start	EOPM	EOEM
Mars Reconnaissance Orbiter	MRO	08/12/05	12/31/10	12/31/15
Venus Express	VEX	11/09/05	09/24/07	01/22/09
New Horizons	NHPC	01/19/06	04/17/16	TBD
Stereo Ahead	STA	10/26/06	01/22/09	01/22/12
Stereo Behind	STB	10/26/06	01/22/09	01/22/12
EPOXI (Deep Impact)	DIF	07/03/07	01/04/09	---
NExT (Stardust)	SDU	07/03/07	02/24/11	---
Phoenix	PHX	08/04/07	10/26/08	TBD
Kaguya (SELENE)	SELE	09/13/07	10/25/07	TBD
Dawn	DAWN	09/26/07	03/07/11	TBD
Lunar Reconnaissance Orbiter	LRO	10/28/08	09/31/10	TBD
Lunar Crater Observation and Sensing Satellite (LCROSS)	LCR	10/28/08	02/05/09	---
Kepler	KEPL	02/16/09	12/31/12	TBD
Mars Science Laboratory 2009	MSL	09/15/09	03/04/12	TBD





# Resource Allocation Review Loading Study DSN User / Mission Planning Set

## – Advanced / Planning Projects –

Project	Acronym	Launch or Start	EOPM	EOEM
Chandrayaan - 1	CH1	03/01/08	03/01/10	TBD
Juno	JUNO	08/11/11	08/11/17	TBD
Mars Scout 2011 (TBS)	M11O	01/31/12	09/10/14	TBD
James Webb Space Telescope	JWST	06/01/13	07/31/18	TBD
Mars Science Orbiter 2013	M13O	11/28/13	08/21/16	TBD
Magnetospheric Multiscale	MMS	10/01/14	12/31/16	- - -



# Resource Allocation Review Loading Study DSN Major Downtimes by Date

– 2007 –

Site	Description	Start	End	Duration (days)	Week(s)	Start DOY	End DOY
DSS 63	Hydrostatic Bearing Replacement	06/12/2007	09/16/2007	97	24 - 37	163	259
DSS 63	Depot Level Maintenance - NIB	06/12/2007	09/16/2007	97	24 - 37	163	259
DSS 63	Load Sensors Install - NIB	06/12/2007	09/16/2007	97	24 - 37	163	259
DSS 45	Antenna Drive Cabinet Refurbishment	08/27/2007	09/30/2007	35	35 - 39	239	273
DSS 45	S-Band 200W U/L Install - NIB	08/27/2007	09/30/2007	35	35 - 39	239	273
DSS 45	Depot Level Maintenance - NIB	08/27/2007	11/18/2007	84	35 - 46	239	322
DSS 45	Antenna Controller Replacement	10/01/2007	11/18/2007	49	40 - 46	274	322
DSS 65	200W S-Band U/L	10/29/2007	12/10/2007	42	44 - 49	302	343
DSS 65	Depot Level Maintenance - NIB	10/29/2007	12/10/2007	42	44 - 49	302	343
SPC 10	Network Infrastructure - <b>Proposed</b>	11/12/2007	11/12/2007	1	46 - 45	316	316
SPC 60	Network Infrastructure - <b>Proposed</b>	11/12/2007	11/12/2007	1	46 - 45	316	316
SPC 40	Network Infrastructure - <b>Proposed</b>	11/12/2007	11/12/2007	1	46 - 45	316	316
DSS 43	Rescue Platform Install - <b>Proposed</b>	12/06/2007	12/09/2007	3	49 - 49	340	342

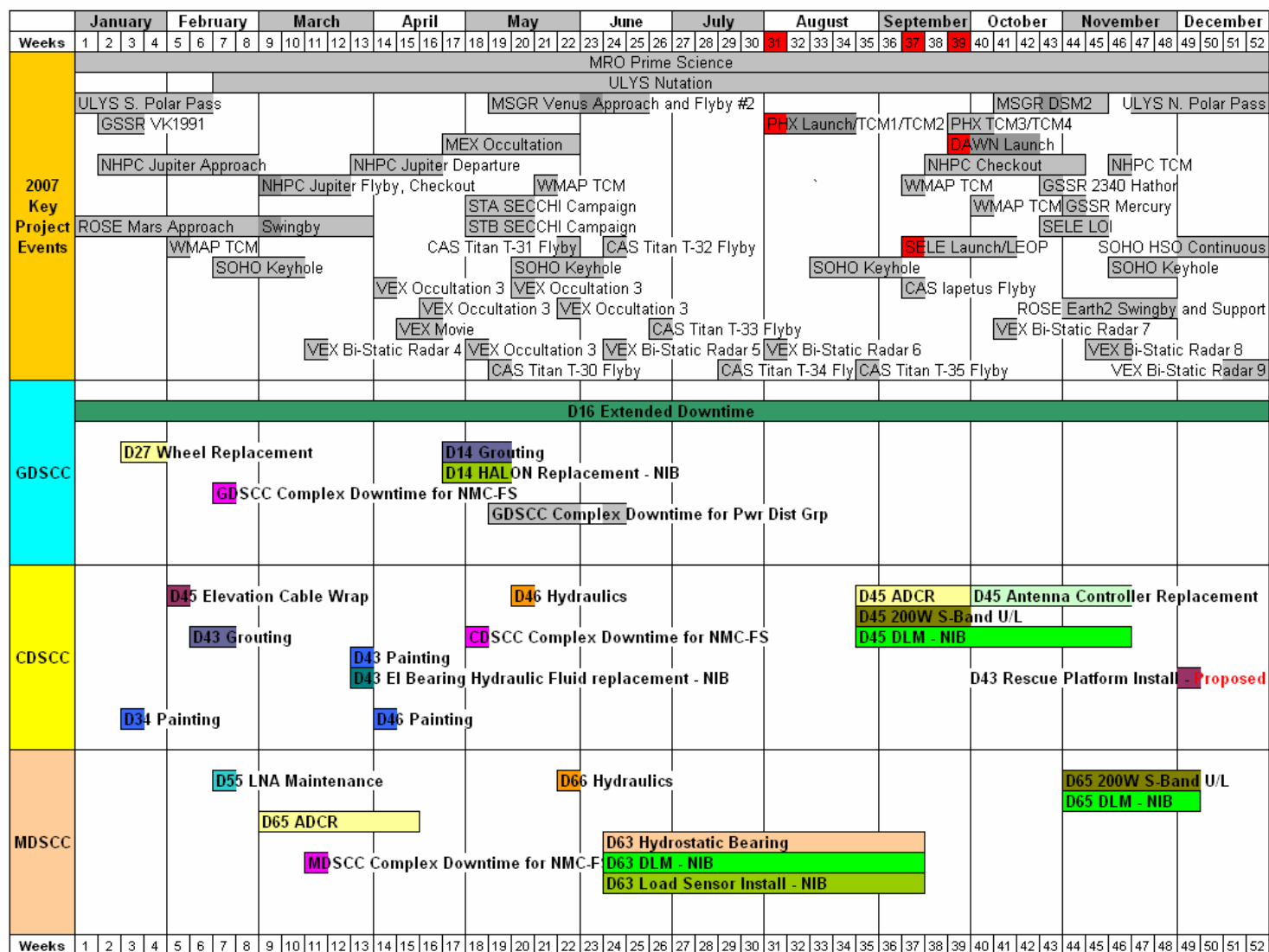


# Resource Allocation Review

## Loading Study

### DSN Major Downtimes by Date

– 2007 –



Revised: August 17, 2007

9/20/2007

Final

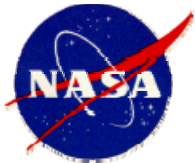
2.0 – 18



# Resource Allocation Review Loading Study DSN Major Downtimes by Date

– 2008 –

Site	Description	Start	End	Duration (days)	Week(s)	Start DOY	End DOY
DSS 14	ACR S/W Install - <b>Proposed</b>	01/21/2008	02/04/2008	14	04 - 05	021	034
DSS 14	Grouting	02/04/2008	02/08/2008	3	06 - 06	035	037
DSS 54	X/X-Ka Band Install	02/04/2008	05/11/2008	98	06 - 19	035	132
DSS 54	AZ Track Refurbishment - NIB	02/04/2008	05/11/2008	98	06 - 19	035	132
DSS 54	AZ Data Gear Replacement - NIB	02/04/2008	05/11/2008	98	06 - 19	035	132
DSS 54	Q-Band Installation - NIB	02/04/2008	05/11/2008	98	06 - 19	035	132
DSS 54	Depot Level Maintenance - NIB	02/04/2008	05/11/2008	98	06 - 19	035	132
DSS 15	Life Extension	02/18/2008	05/11/2008	84	08 - 19	049	132
DSS 15	Depot Level Maintenance - NIB	02/18/2008	05/11/2008	84	08 - 19	049	132
SPC 60	Commercial Power Install - <b>Proposed</b>	03/22/2008	03/23/2008	2	12 - 12	082	083
SPC 60	Commercial Power Install - <b>Proposed</b>	03/30/2008	03/30/2008	1	13 - 13	090	090
SPC 60	Commercial Power Install - <b>Proposed</b>	03/31/2008	03/31/2008	1	14 - 14	091	091
SPC 60	Commercial Power Install - <b>Proposed</b>	04/06/2008	04/06/2008	1	14 - 14	097	097
SPC 60	Commercial Power Install - <b>Proposed</b>	04/07/2008	04/07/2008	1	15 - 15	098	098
DSS 55	Paint Repair - <b>Proposed</b>	06/02/2008	07/14/2008	42	23 - 28	151	196
DSS 14	Grouting	06/16/2008	06/19/2008	3	25 - 25	168	171



# Resource Allocation Review Loading Study

## DSN Major Downtimes by Date

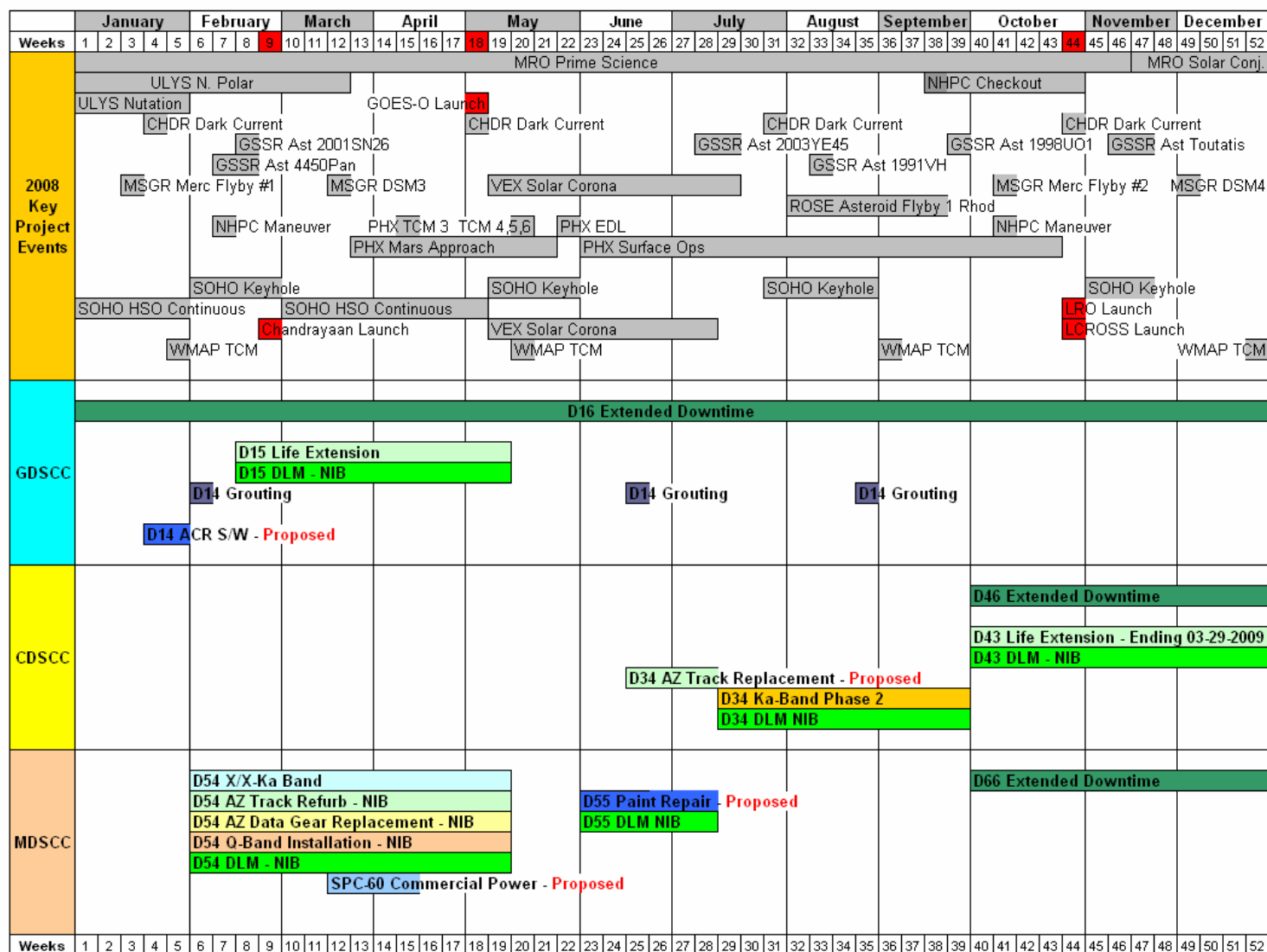


– 2008 –

Site	Description	Start	End	Duration (days)	Week(s)	Start DOY	End DOY
DSS 34	AZ Track Replacement - <b>Proposed</b>	06/16/2008	07/13/2008	28	25 - 28	168	195
DSS 34	Ka-Band Phase 2 Install	07/14/2008	09/29/2008	77	29 - 39	196	272
DSS 34	Depot Level Maintenance - NIB	07/14/2008	09/29/2008	77	29 - 39	196	272
DSS 14	Grouting	08/25/2008	08/28/2008	3	35 - 35	238	241
DSS 43	Life Extension	09/29/2008	03/29/2009	182	40 - 13	273	088
DSS 43	Depot Level Maintenance – NIB	09/29/2008	03/29/2009	182	40 - 13	273	088



# Resource Allocation Review Loading Study DSN Major Downtimes by Date



- 2008 -



# Resource Allocation Review Loading Study DSN Major Downtimes by Date



– 2009 –

Site	Description	Start	End	Duration (days)	Week(s)	Start DOY	End DOY
DSS 63	Life Extension	03/30/2009	09/27/2009	182	14 - 39	089	270
DSS 24	Ka-Band Phase 2 Install	07/06/2009	09/21/2009	77	28 - 38	187	263
DSS 24	Depot Level Maintenance - NIB	07/06/2009	09/21/2009	77	28 - 38	187	263
DSS 14	Life Extension	09/28/2009	03/28/2010	182	40 - 12	271	087
DSS 14	Depot Level Maintenance - NIB	09/28/2009	03/28/2010	182	40 - 12	271	087
DSS 65	Life Extension Elevation - <b>Proposed</b>	09/28/2009	11/29/2009	62	40 - 48	271	332

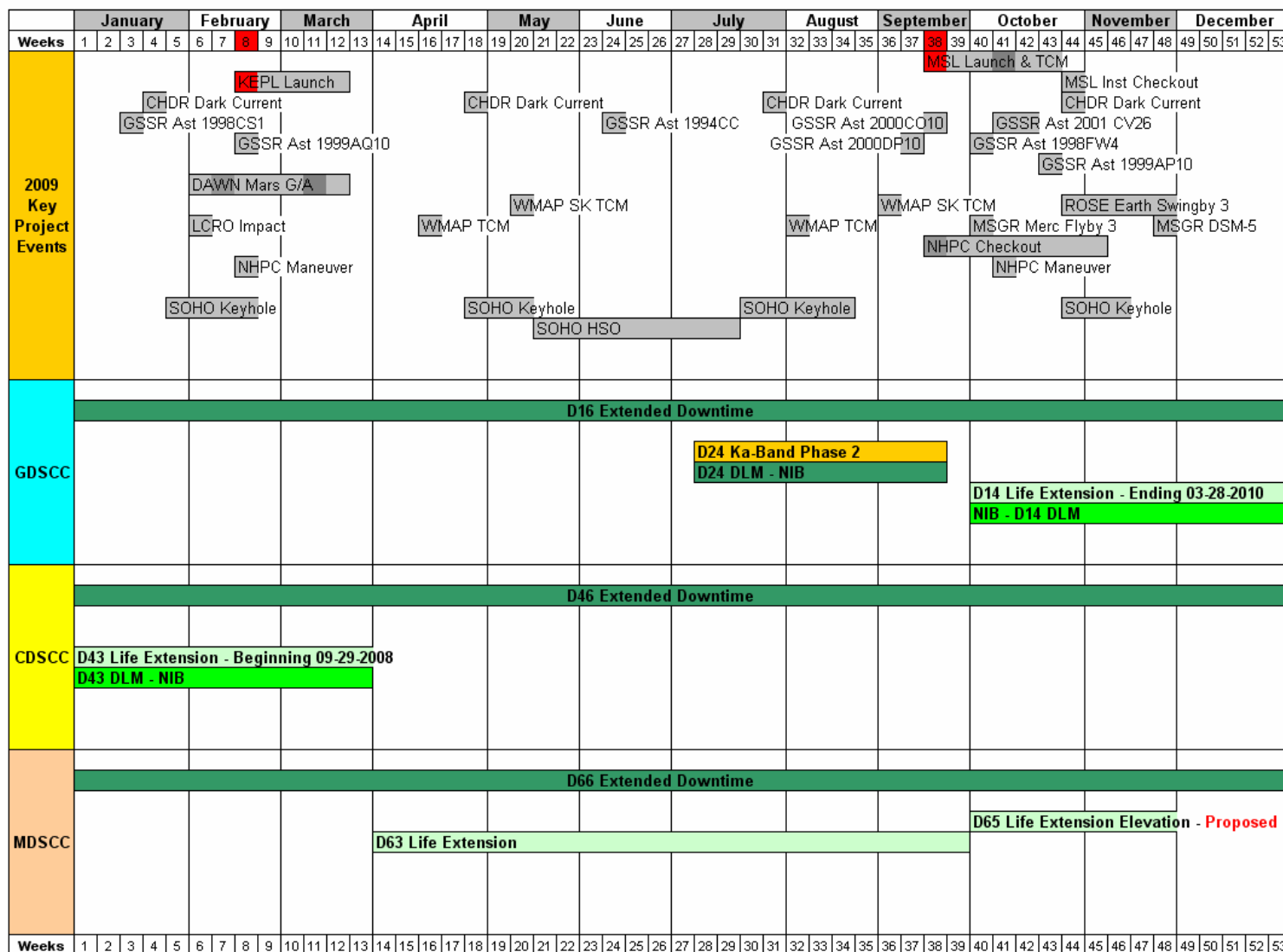


# Resource Allocation Review

## Loading Study

### DSN Major Downtimes by Date

– 2009 –



Revised: September 11, 2007





# Resource Allocation Review Loading Study DSN Major Downtimes by Date

– 2010 –

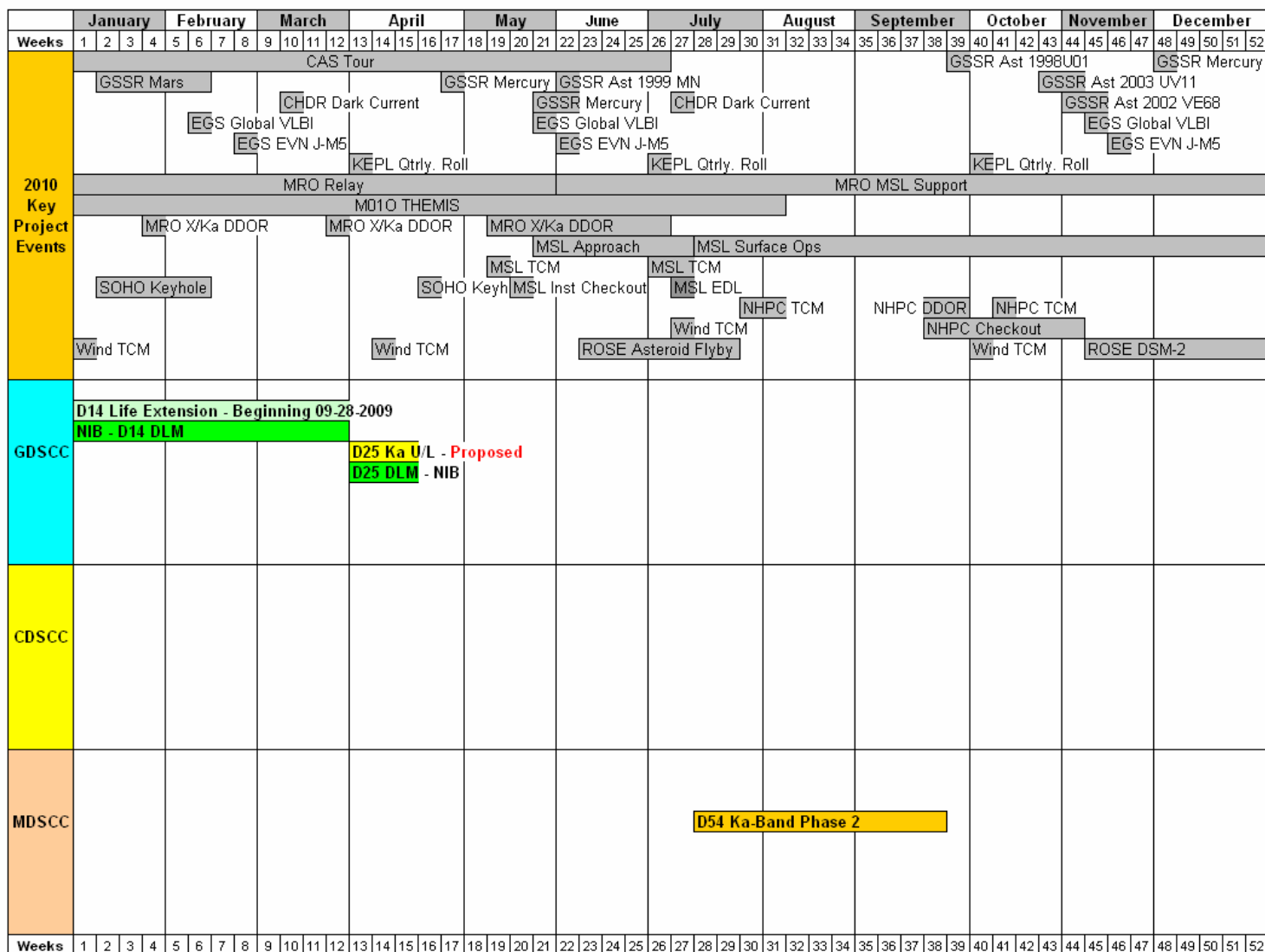
Site	Description	Start	End	Duration (days)	Week(s)	Start DOY	End DOY
DSS 25	Ka-Band Uplink Install - <b>Proposed</b>	03/29/2010	04/18/2010	21	13 - 15	088	108
DSS 25	Depot Level Maintenance - NIB	03/29/2010	04/18/2010	21	13 - 15	088	108
DSS 54	Ka-Band Phase 2 Install	07/12/2010	09/27/2010	77	28 - 38	193	269



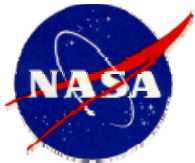
# Resource Allocation Review

## Loading Study

### DSN Major Downtimes by Date



- 2010 -



# Resource Allocation Review Loading Study



## IND Resource Implementation Planning Matrix

Complex	Station	Subnet	S-Band		X-Band		Ka-Band		Ka Phase 2
			Down	Up	Down	Up	Down	Up	
10	DSS-16	26M	✓	✓	N/A	N/A	N/A	N/A	N/A
40	DSS-46	26M	✓	✓	N/A	N/A	N/A	N/A	N/A
60	DSS-66	26M	✓	✓	N/A	N/A	N/A	N/A	N/A
10	DSS-27	34HSB	✓	✓	N/A	N/A	N/A	N/A	N/A
10	DSS-24	34B1	✓	✓	✓	✓	N/A	N/A	09/21/09
40	DSS-34	34B1	✓	✓	✓	✓	✓	N/A	09/29/08
60	DSS-54	34B1	✓	✓	✓	✓	04/15/08	N/A	09/27/10
10	DSS-25	34B2	N/A	N/A	✓	✓	✓	08/01/10	N/A
10	DSS-26	34B2	N/A	N/A	✓	✓	✓	N/A	N/A
60	DSS-55	34B2	N/A	N/A	✓	✓	✓	N/A	N/A
10	DSS-15	34HEF	✓	N/A	✓	✓	N/A	N/A	N/A
40	DSS-45	34HEF	✓	11/18/07	✓	✓	N/A	N/A	N/A
60	DSS-65	34HEF	✓	12/10/07	✓	✓	N/A	N/A	N/A
10	DSS-14	70M	✓	✓	✓	✓	N/A	N/A	N/A
40	DSS-43	70M	✓	✓	✓	✓	N/A	N/A	N/A
60	DSS-63	70M	✓	✓	✓	✓	N/A	N/A	N/A
N/A = Capability Not Planned    xx/xx/xx = Capability Date Recently Changed    As of: 08/16/07 ✓ ✓ ✓ = Capability Recently Exists    ✓ = Capability Exists									

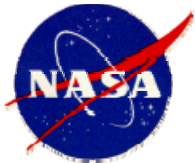


# Resource Allocation Review Periods of Contention

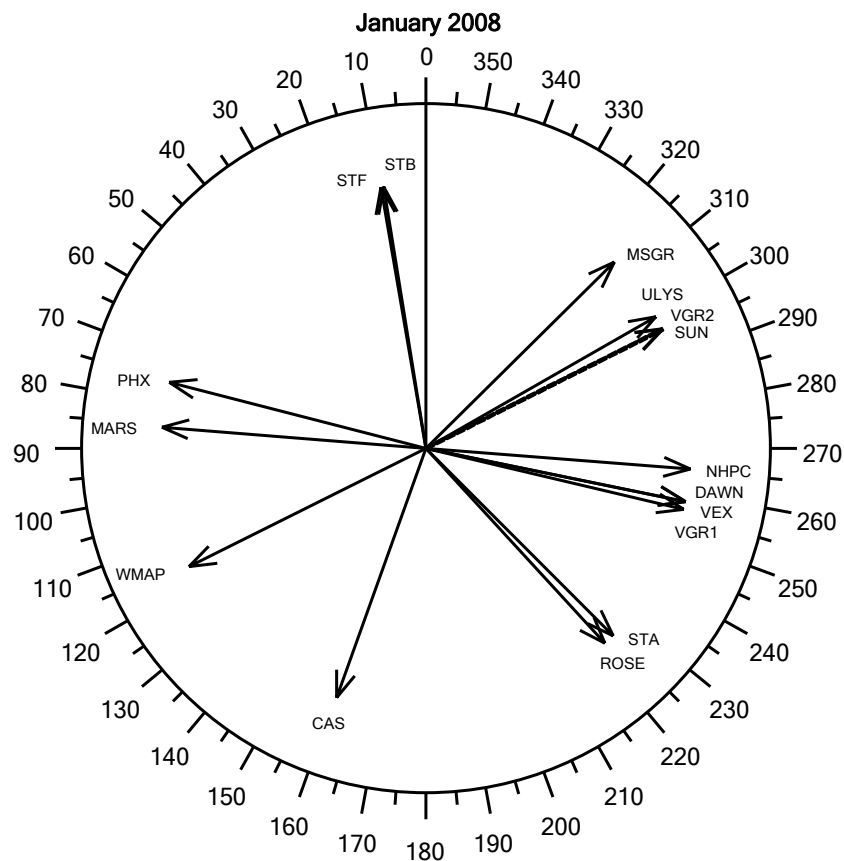


<i>Legend</i>	
<b>05 – 08</b>	Indicates months that DO contain contentions to be resolved
<b>18 – 22</b>	Indicates months that DO NOT contain contentions to be resolved
<i>01 – 04</i>	Indicates months without contention

Month	Weeks		
	2008	2009	2010
January	<b>01 – 05</b>	<b>01 – 05</b>	<i>01 – 04</i>
February	<i>06 – 09</i>	<b>06 – 09</b>	<i>05 – 08</i>
March	<b>10 – 13</b>	<i>10 – 13</i>	<i>09 – 12</i>
April	<b>14 – 17</b>	<i>14 – 18</i>	<b>13 – 17</b>
May	<b>18 – 22</b>	<i>19 – 22</i>	<b>18 – 21</b>
June	<b>23 – 26</b>	<i>23 – 26</i>	<b>22 – 25</b>
July	<b>27 – 31</b>	<i>27 – 31</i>	<b>26 – 30</b>
August	<i>32 – 35</i>	<i>32 – 35</i>	<i>31 – 34</i>
September	<b>36 – 39</b>	<i>36 – 39</i>	<i>35 – 39</i>
October	<b>40 – 44</b>	<b>40 – 44</b>	<i>40 – 43</i>
November	<b>45 – 48</b>	<b>45 – 48</b>	<i>44 – 47</i>
December	<b>49 – 52</b>	<i>49 – 53</i>	<i>48 – 52</i>



# Resource Allocation Review Spacecraft Right Ascension July 15, 2007



THE SPACECRAFT RIGHT ASCENSION FIGURES SHOW THE POSITIONS OF THE SPACECRAFT IN THE SKY RELATIVE TO EACH OTHER ON THE 15TH OF EACH MONTH FOR THE YEAR INDICATED. RIGHT ASCENSION IS COMMONLY MEASURED IN HOURS, WITH 1 HOUR = 15 DEGREES.

THE ARROW INDICATES THE CENTER OF A SPACECRAFT VIEW FROM EARTH. EXTEND 60 DEGREES ON BOTH SIDES OF THE ARROW TO CALCULATE AN EIGHT (8) HOUR VIEW PERIOD.



# Resource Allocation Review Events, Recommendations and Analyses

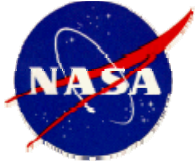


- ◆ The Resource Allocation Review Redbook makes reference to monthly contention as low, moderate, severe, and extreme. The explanation of these terms is listed below.

Projected unsupportable time is expressed as low, moderate, severe, or extreme in the Analysis sections of this document. Projected unsupportable time is an estimate of the amount of requested time, typically in percentage of requirements or modified requirements, that is unsupportable, based on resource availability, other users' requirements, assumed priorities, and view periods. The following percentages apply:

Low/Workable	= <20%
Moderate	= 20% to 30%
Severe	= 31% to 45%
Extreme	= >45%

Workable is a term used to express a condition wherein the projected unsupportable time is low. This condition occurs when the general forecasting analysis indicates a low percentage of unsupportable time or when agreements have been made to reduce contention to a workable level. Workable essentially means that experience has shown that the remaining contention may be solved during final schedule preparations and negotiations.



# **Resource Allocation Review Events, Recommendations and Analyses**



## **2008 Events, Recommendations and Analyses**

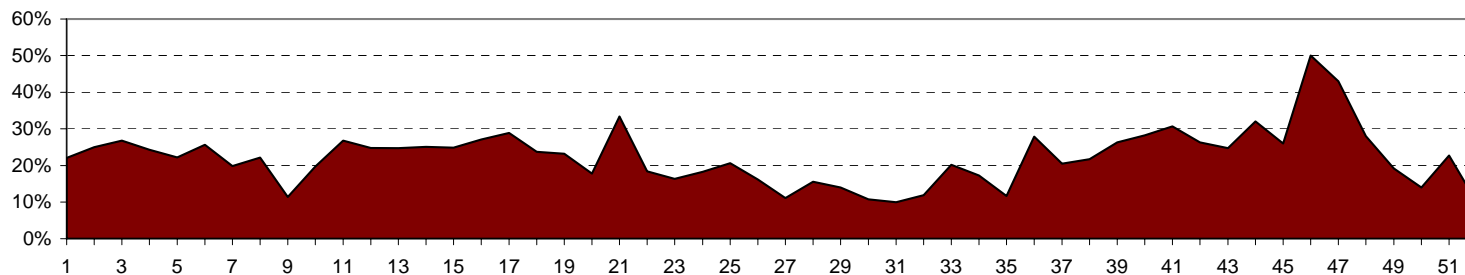


# Resource Allocation Review

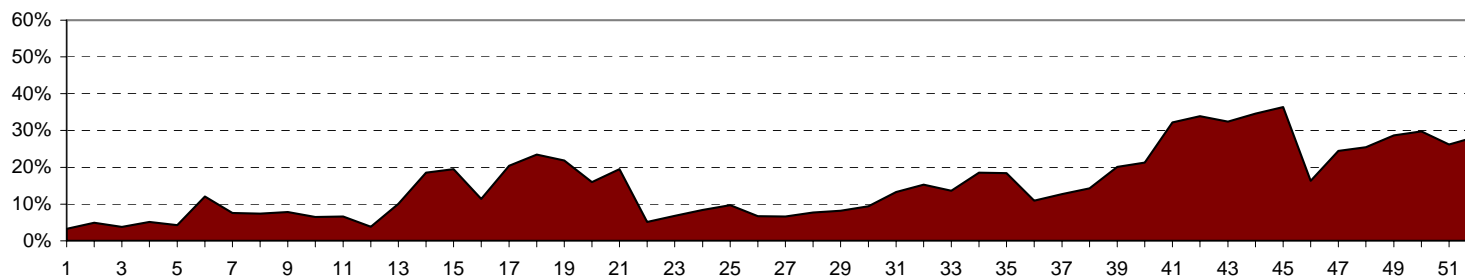
## Events, Recommendations and Analyses

### 2008 Weekly Average User Unsupportable Time

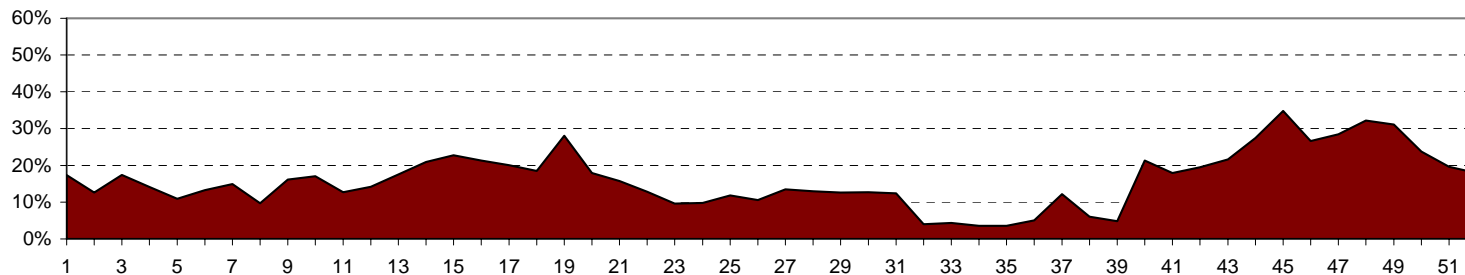
70M



34HEF



34BWG1





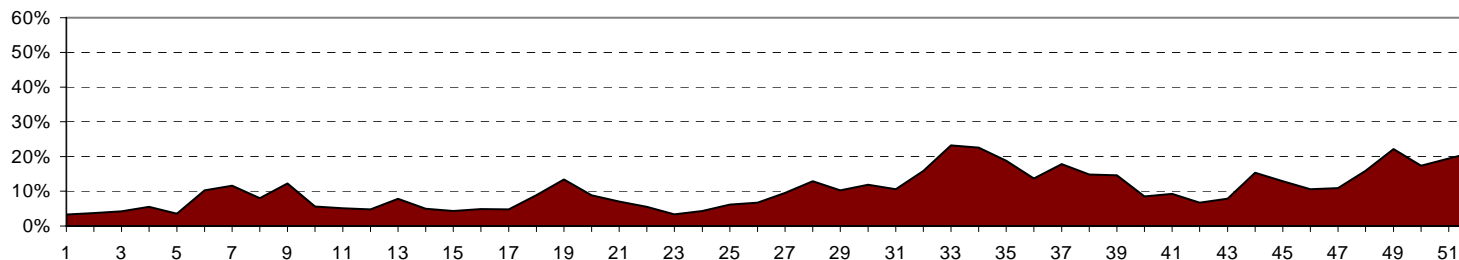


# Resource Allocation Review

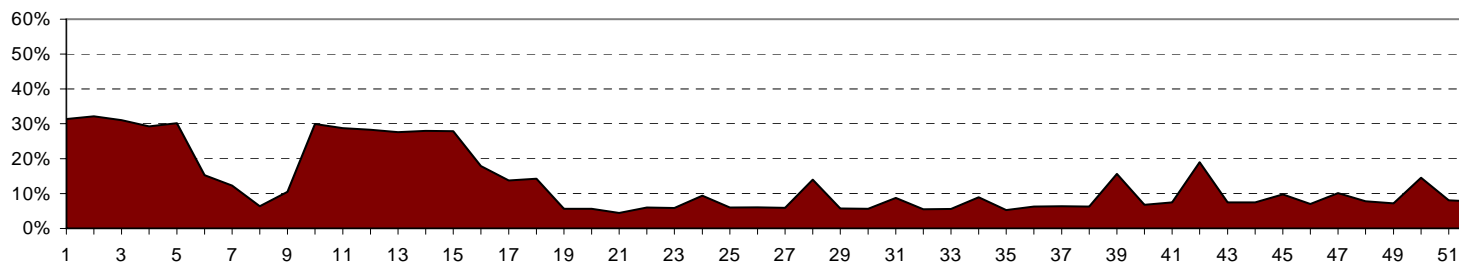
## Events, Recommendations and Analyses

### 2008 Weekly Average User Unsupportable Time

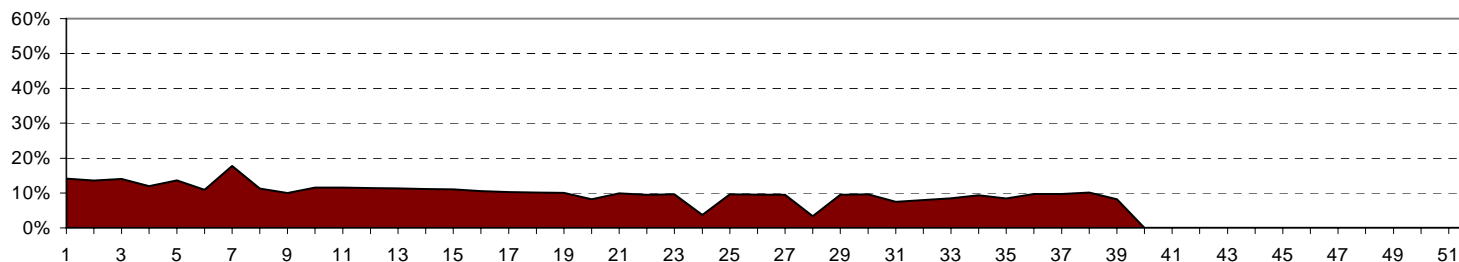
34BWG2



34HSB



26M

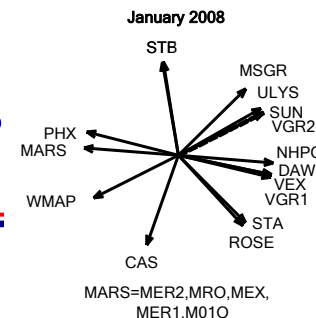




# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – January (Weeks 01 - 05)



#### **EVENTS**

**DSS-14 proposed downtime for Antenna Controller Replacement Software in weeks 04 – 05**

**Cassini Tour**

**Chandra Earth Eclipse ends in week 01, Lunar Eclipse in week 04**

**Dawn Cruise Thrust ends in week 05, Delta DOR in weeks 02, 04**

**EPOXI Earth Flyby; TCM in weeks 03, 04**

**GSSR Mars in weeks 01 – 04, Mercury in week 04, Mercury GBT in week 01**

**Mars Reconnaissance Orbiter Prime Science/M01O Themis; X/Ka-DDOR in weeks 01, 05**

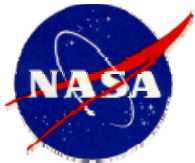
**Mars Odyssey Delta DOR in week 03**

**MESSENGER Delta DOR in weeks 01 – 04, TCM in weeks 02 – 04, Mercury Flyby #1 begins week 03 – 07 (DOY 014)**

**Phoenix Delta DOR**

**SGP Crustal Dynamics H-M4 in weeks 02 and 04, B-M4 in week 03, W-M4 in weeks 03 and 04**

**SOHO HSO ending in week 05**



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – January (Weeks 01 - 05) (Continued)

#### **EVENTS**

Stereo Ahead HGA CAL in week 02, SECCHI Campaign in weeks 02 – 03

Stereo Behind HGA CAL in week 02, SECCHI Campaign in weeks 02 – 03

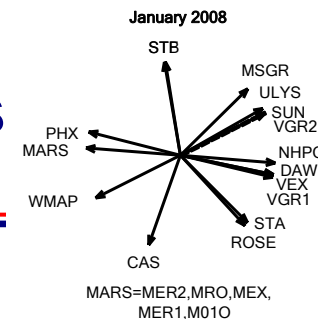
Ulysses Nutation

Voyager 1 MAGROL Overlay in weeks 01 – 02, DTR Array in week 02, MAGROL on DOY 032

Voyager 2 GYROS ON in week 03, HYBIC Swap in week 04, BLF in week 03

WIND TCM in week 02

WMAP Maneuver in week 04





# Resource Allocation Review Events, Recommendations and Analyses



2008 – January (Weeks 01 - 05) (continued)

---

## RECOMMENDATIONS

DSS approve proposed DSS-14 ACR beginning in week 04 (01/24/08) and ending in week 05 (02/03/08)

☺ ACE move all passes from DSS-27,66 to DSS-24,54. (3)

CHDR move all passes from DSS-27,66 to DSS-24,54. (3)

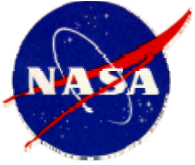
M01O Mapping MSPA 7 passes at 70M with MRO Prime Science 3 passes at DSS-25,34,55 and 4 passes at 70M. (1)

MRO Prime Science MSPA 3 standalone passes at DSS-25,34,55 and 4 standalone passes at 70M with M01O Mapping at 70M. (1)

☺ POLR Playback move 18 of 28 passes from DSS-27,46,66 to 34H. (3)

VGR2 reduce passes to 6 hours. (2)

☺ WIND move 3 passes from 34B1 to DSS-45. (2)



# **Resource Allocation Review Events, Recommendations and Analyses**

**2008 – January (Weeks 01 - 05) (continued)**

---

## **ANALYSES**

1. (70M) The overlap between Mars and Sun Earth L2 (WMAP) are nearly 100%.
2. (34BWG1) The projected unsupportable time is moderate to extreme for DSS Maintenance, MSGR Cruise and VGR2 routine support.
3. (34HSB) The SOHO HSO overloads the antenna.

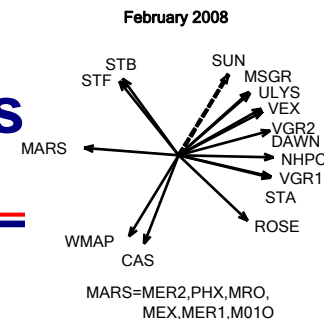
Contention levels on the 34H, 34BWG2, and 26M subnets are workable and should resolve during final schedule preparations and negotiations



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – February (Weeks 06 - 09)



#### **EVENTS**

DSS-14 approved downtime (Quarterly Grouting) in week 06

DSS-15 approved downtime (Life Extension) beginning in week 08

DSS-54 approved downtime (X/X-Ka Band Install) beginning in week 06

ATOT A01 Astrometry in week 07

Cassini Tour

Dawn Cruise; Delta DOR in weeks 06, 08

EGS Calibration in week 09

GSSR Asteroid 2001 SN26 in week 06, Asteroid 4450 Pan in weeks 07 – 08

Mars Odyssey Delta DOR in week 07

MESSENGER Mercury Flyby #1 in weeks 06 – 07, TCM in week 06

Phoenix Delta DOR

Polar TCM in week 07

SOHO Keyhole in weeks 06 - 09, Maneuver in week 08

SGP Crustal Dynamics B-M4 in week 06

Ulysses Nutation

Voyager 2 MAGROL Overlay in week 06



# Resource Allocation Review Events, Recommendations and Analyses

2008 – February (Weeks 06 - 09) (continued)

---

## RECOMMENDATIONS

None



# **Resource Allocation Review Events, Recommendations and Analyses**



**2008 – February (Weeks 06 - 09) (continued)**

---

## **ANALYSES**

**Contention levels on the 70M, 34H, 34BWG1, 34BWG2, 34HSB and 26m subnets are workable and should resolve during final schedule preparations and negotiations**

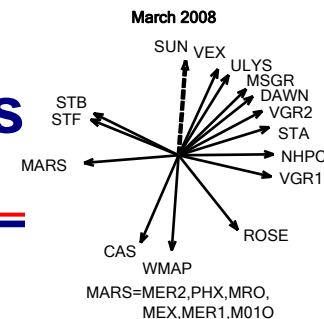




# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – March (Weeks 10 - 13)



#### EVENTS

DSS-15 approved downtime (Life Extension)

DSS-54 approved downtime (X/X-Ka Band Install)

SPC-60 Proposed Complex-Wide downtime (Commercial Power Installation)

Cassini Tour

Chandra ACA Dark Current Measurement in week 10

Dawn Cruise; Delta DOR in weeks 10, 12

EGS EVN J-M5 in weeks 10, 12; Global VLBI in week 11

GSSR Mercury in week 12

Hayabusa MUSES-C Orbit Determination in week 11

Mars Odyssey Delta DOR in week 11, Themis

Mars Reconnaissance Orbiter X/Ka Delta DOR in week 13, Prime Science

MESSENGER DSM-3 in week 12

Phoenix Delta DOR, Approach begin in week 13, Delta DOR

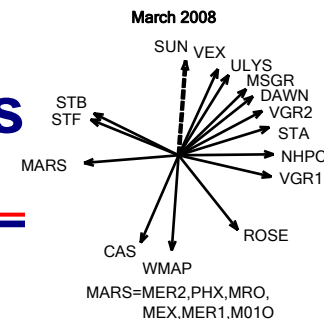
SGP Crustal Dynamics W-M4 in weeks 10 and 13, B-M4 in week 11



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – March (Weeks 10 - 13) (Continued)



#### EVENTS

SOHO HSO beginning in week 10

Voyager 1 MAGROL on DOY 072

Voyager 2 ASCAL in week 11, XB High Power in week 10, XB Low Power in week 12,  
MAGROL on DOY 073

Wind TCM in week 12



# Resource Allocation Review Events, Recommendations and Analyses



2008 – March (Weeks 10 - 13) (continued)

---

## RECOMMENDATIONS

Approve proposed SPC-60 Complex-Wide downtime beginning in week 12, Saturday – Sunday 36-Hours in week 12 and Sunday 12-hours per day in week 13 (3)

☺ ACE move all passes from DSS-27,66 to 34B1. (2)

CHDR move all passes from DSS-27 to 34B1. (2)

M01O Mapping move 4 passes on 70M to MSPA with MRO Prime Science on 70M. (1)

MRO Prime Science move 4 passes on 70M to MSPA with M01O Mapping on 70M. (1)

PHX Approach accept 6 – 8 hour gap in continuous coverage at Madrid on DOY 090. (3)

☺ POLR move 18 Playback passes from DSS-27,46,66 to 34H. (2)

☺ SOHO HSO move from weeks 10 – 18 to 22 - 30. (3)

VGR2 reduce 8 hour passes to 6 hours. (1)



# **Resource Allocation Review Events, Recommendations and Analyses**



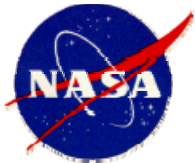
**2008 – March (Weeks 10 - 13) (continued)**

---

## **ANALYSES**

1. (70M) The projected unsupportable time is moderate to extreme for DSS Maintenance, Mars and VGR2 routine support.
2. (34HSB) The SOHO HSO overloads the antenna.
3. (SPC-60) Supportability and capacity are reduced during SPC-60 Complex-Wide downtime for 2 continuous days of daylight hours which will affect SOHO HSO and Phoenix continuous coverage. It is suggested that SOHO use the ESA 35m antenna in Spain (D/L) only and that Phoenix accept a gap.

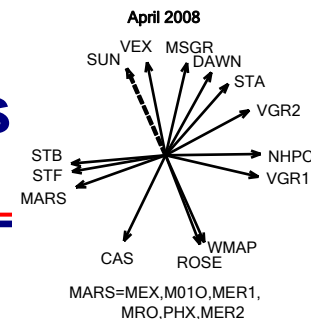
Contention levels on the 34H, 34BWG1, 34BWG2 and 26M subnets are workable and should resolve during final schedule preparations and negotiations.



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – April (Weeks 14 - 17)



#### **EVENTS**

DSS-15 approved downtime (Life Extension)

DSS-54 approved downtime (X/X-Ka Band Install)

SPC-60 Proposed Complex-Wide downtime (Commercial Power Installation)

#### **Cassini Tour**

Dawn Cruise; Delta DOR in weeks 14, 16

Mars Odyssey Delta DOR in week 16; Relay

Mars Reconnaissance Orbiter Prime Science/M010 Themis ends in week 17; X/Ka-Delta DOR in week 17

MESSENGER TCM in week 17

Phoenix Approach, Delta DOR, and TCM in week 15

SGP Crustal Dynamics B-M4 in week 15

SOHO HSO

Stereo Ahead HGA CAL in week 14

Stereo Behind HGA CAL in week 14

Voyager 1 MAGROL Overlay in week 14

Voyager 2 MAGROL on DOY 114



# Resource Allocation Review Events, Recommendations and Analyses

2008 – April (Weeks 14 - 17) (continued)

## RECOMMENDATIONS

Approve proposed SPC-60 Complex-Wide downtime ending in week 15, Monday and Sunday 12-hours per day in weeks 14 and Monday 12-hours in week 15 (3)

☺ ACE move 5 of 7 passes from DSS-27,66 to 34B1. (2)

M01O Mapping MSPA four 70M passes with MRO Prime Science on 70M in weeks 14-17. (1)

MRO Prime Science MSPA four 70M passes with M01O Mapping on 70M in weeks 14-17. (1)

PHX Approach accept 6 – 8 hour gap in continuous coverage at Madrid on DOY 091, 097 and 098. (3)

☺ POLR move 18 of 28 Playback passes from DSS-27,46,66 to 34H in weeks 14 and 15 and 4 of 8 passes from DSS-27,46,66 to 34H in week 16. (2)

☺ SOHO HSO move from weeks 10 – 18 to 22 - 30. (3)



# **Resource Allocation Review Events, Recommendations and Analyses**

**2008 – April (Weeks 14 - 17) (continued)**

---

## **ANALYSES**

- 1. (70M) The projected unsupportable time is moderate to extreme for DSS Maintenance and Mars missions.**
- 2. (34HSB) The projected unsupportable time is moderate to extreme for ACE, DSS Maintenance, and POLR Playback in weeks 14-16.**
- 3. (SPC-60) Supportability and capacity are reduced during SPC-60 Complex-Wide downtime for 2 continuous days of daylight hours which will affect SOHO HSO and Phoenix continuous coverage. It is suggested that SOHO use the ESA 35m antenna in Spain (D/L) only and that Phoenix accept a gap.**

**Contention levels on the 34H, 34BWG1, 34BWG2, and 26M subnets are workable and should resolve during final schedule preparations and negotiations.**



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – May (Weeks 18 - 22)

#### EVENTS

DSS-15 approved downtime (Life Extension) ending in week 19

DSS-54 approved downtime (X/X-Ka Band Install) ending in week 19

ATOT A01 Image in week 18

Cassini Tour

Dawn Cruise; Delta DOR in weeks 18, 21, 22

EGS Calibration in week 21, EVN J-M5 in week 22

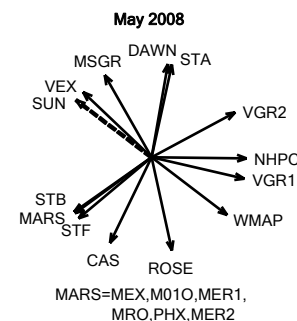
GSSR Mercury in week 20, GODR in week 22

Mars Odyssey Phoenix Relay begins in week 19 ; Themis in week 18, Delta DOR in week 20

Mars Express Orbital Science, Phoenix Relay beginning in week 21

Mars Reconnaissance Orbiter Prime Science/ M010 Relay in week 21, X/Ka-Delta DOR in week 21

NHPC Maneuver in weeks 21, 22







# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – May (Weeks 18 - 22) (Continued)

#### EVENTS

Phoenix Approach; Delta DOR in weeks 18 – 21, TCM in weeks 19 – 21, EDL in week 22

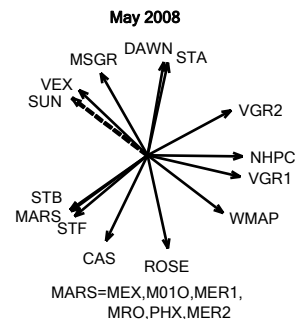
SGP Crustal Dynamics W-M4 in week 18, B-M4 in week 20, W-M4 in week 21

SOHO HSO ends in week 18, Keyhole in weeks 19 – 21, Maneuver in weeks 21 – 22

Venus Express Solar Corona begins week 19 – 28

Voyager 1 ASCAL in week 18, MAGROL on DOY 123

Voyager 2 MAGROL Overlay in week 19, BLF in week 18





# Resource Allocation Review Events, Recommendations and Analyses

2008 – May (Weeks 18 - 22) (continued)

## RECOMMENDATIONS

☺ ACE move 2 of 7 passes from DSS-27, 66 to 34B1 in week 18. (2)

CHDR move 7 of 21 passes from 34B1 to DSS-27 in week 18. (2)

M01O Relay MSPA 7 of 14 passes in week 19, 21 and 22, and 5 of 12 passes in week 20 at 34B1,34B2 with MRO Prime Science DSS-25,34,55. Delete remaining 7 passes at 34B1,34B2. (1,2)

MRO Prime Science MSPA 7 passes in weeks 19, 21 and 22, and 5 passes in week 20 at DSS-25,34,55 with M01O Relay. (1,2)

PHX Approach reduce 70M portion of 10 70M/34B1 8-hour passes to 6 hours, change remaining 4 70M/34B1 passes to standalone passes on 34B1 in week 21. (1)

☺ WIND move 2 of 7 passes from 34B1 to DSS-45 in weeks 18,19. (2)



# Resource Allocation Review Events, Recommendations and Analyses

2008 – May (Weeks 18 - 22) (continued)

---

## ANALYSES

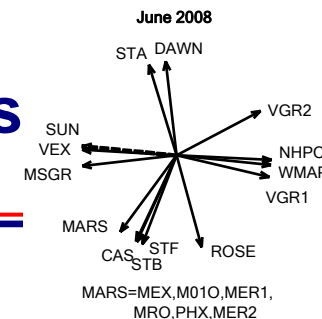
1. (70M) The projected unsupportable time is moderate to extreme for DSS Maintenance, M01O, MEX, MRO, Phoenix Mars Approach phase, SOHO Keyhole, STF, and WMAP. Contention is due to Phoenix continuous 70M requirements and Oversubscription of MARS view by M01O, MRO and MEX.
2. (34B1) The projected unsupportable time is moderate to severe for CHDR Dark Current, DIF, DSS Maintenance, M01O Relay, MRO, PHX, STA, STB, ULYS, VGR2 and WIND. Contention is primarily due to PHX Mars Approach and is compounded by the DSS-55 downtime.

Contention levels on the 34H, 34B2, 34HSB and 26M subnets are workable and should resolve during final schedule preparations and negotiations.



## **EVENTS**

# **Resource Allocation Review Events, Recommendations and Analyses 2008 – June (Weeks 23 - 26)**



DSS-14 approved downtime (Quarterly Grouting) in week 25

DSS-34 proposed downtime (AZ Track Replacement) beginning in week 25

DSS-55 proposed downtime (Paint Repair) beginning in week 23

Cassini Tour

Chandra Earth Eclipse in weeks 24 - 26

Dawn Cruise Thrust; Delta DOR in weeks 24 and 26, Instrument Check out in weeks 23 – 24

EGS Calibration in week 24, EVN J-M5 in week 23

GSSR Mercury in week 23, GODR in weeks 24 and 26, Mercury GBT in week 25

Hayabusa MUSES-C Orbit Determination in week 24

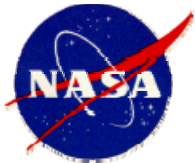
Mars Odyssey Phoenix Relay

Mars Express Orbital Occultation, Phoenix Relay

Mars Reconnaissance Orbiter Prime Science; X/Ka-DDOR in week 25

SGP Crustal Dynamics H-M4 in week 23, W-M4 in week 25, B-M4 in week 26

SOHO TSO in week 24



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – June (Weeks 23 - 26) (Continued)

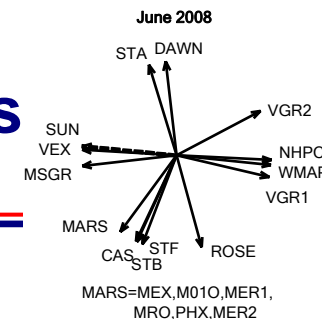
#### EVENTS

Venus Express Solar Corona

Voyager 2 MAGROL on DOY 166

Wind TCM in week 24

WMAP Maneuver in week 23





# Resource Allocation Review Events, Recommendations and Analyses

2008 – June (Weeks 23 - 26) (continued)

## RECOMMENDATIONS

DSS approve proposed DSS-34 Azimuth Track Replacement downtime beginning in week 25. (2)

DSS approve proposed DSS-55 Paint Repair downtime. (3)

M01O Relay delete 7 passes at DSS-26,45,54. M01O relay at 70M MSPA 7 of 7 passes with MRO Prime Science at DSS-25,34,55 and move to DSS-26,45,54. (1,2,3)

MRO Prime Science at DSS-25,34,55 MSPA 7 of 7 passes with M01O relay at 70M and move to DSS-26,45,54. (1,2,3)

☺ SOHO TSO move from week 24 to week 10. (2)



# **Resource Allocation Review Events, Recommendations and Analyses**

**2008 – June (Weeks 23 - 26) (continued)**

---

## **ANALYSES**

1. (70M) The projected unsupportable time is moderate for M01O, MEX, MRO and PHX in this period due to oversubscription of the MARS viewperiod during PHX Mars Approach and EDL.
2. (34BWG1) The projected unsupportable time is Low/Workable in this period for all missions.
3. (34BWG2) The projected unsupportable time is Low/Workable in this period for all missions.

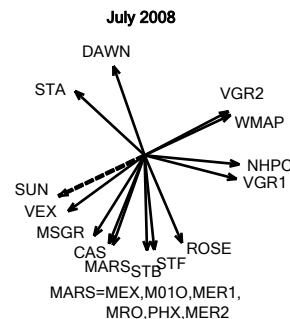
Contention levels on the 34HEF 34HSB and 26M subnets are workable and should resolve during final schedule preparations and negotiations.



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – July (Weeks 27 - 31)



#### EVENTS

DSS-34 proposed downtime (AZ Track Replacement) ending in week 28

DSS-34 approved downtime (Ka Band Phase 2 Install) beginning in week 29

DSS-55 proposed downtime (Paint Repair) ending in week 28

Cassini Tour

Chandra ACA D/C Measurement in week 27

Dawn Cruise Thrust; Delta DOR in weeks 28 and 30

GSSR Mercury GBT in week 27, GODR in weeks 28 and 30, Asteroid 2003 YE45 in weeks 28 – 29, Mercury in week 30 - 31

Mars Odyssey Phoenix Relay

Mars Express Orbital Occultation, Phoenix Relay

Mars Reconnaissance Orbiter Prime Science X/Ka-DDOR in week 29

MESSENGER Delta DOR in weeks 30 - 32

SGP Crustal Dynamics H-M4 in week 28, B-M4 in week 30, W-M4 in week 31

SOHO Keyhole begins week 31, TSO in week 28

Stereo Ahead HGA CAL in week 28





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – July (Weeks 27 - 31) (Continued)

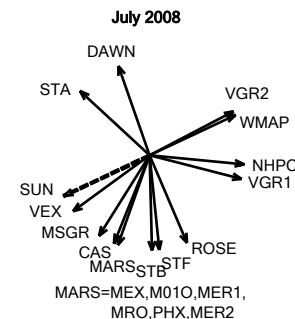
#### EVENTS

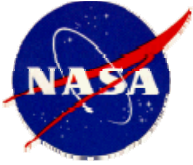
Stereo Behind HGA CAL in week 28

Venus Express Solar Corona ends in week 28

Voyager 1 MAGROL Overlay in week 27, MAGROL on DOY 215

Voyager 2 BLF in week 31





# Resource Allocation Review Events, Recommendations and Analyses

2008 – July (Weeks 27 - 31) (continued)

---

## RECOMMENDATIONS

DSS approve proposed DSS-34 Azimuth Track Replacement downtime. (2)

DSS approve proposed DSS-55 Paint Repair downtime ending in week 28. (3)

M01O Relay delete 7 passes at DSS-26,45,54. M01O relay at 70M MSPA 7 of 7 passes with MRO Prime Science at DSS-26,34,55 and move to DSS-26,45,54. (1,2,3)

MRO Prime Science at DSS-26,34,55 MSPA 7 of 7 passes with M01O relay at 70M and move to DSS-26,45,54. (1,2,3)

☺ SOHO TSO move from week 28 to week 14. (2)



# **Resource Allocation Review Events, Recommendations and Analyses**

**2008 – July (Weeks 27 - 31) (continued)**

---

## **ANALYSES**

1. (70M) The projected unsupportable time is moderate for M01O, MEX, MRO and PHX in this period due to oversubscription of the MARS viewperiod during PHX Mars Approach and EDL.
2. (34BWG1) The projected unsupportable time is Low/Workable in this period for all missions.
3. (34BWG2) The projected unsupportable time is Low/Workable in this period for all missions.

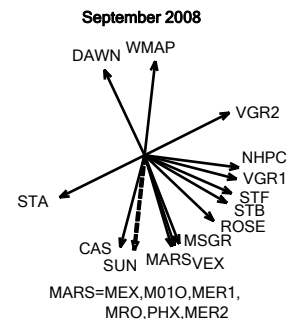
Contention levels on the 34HEF 34HSB and 26M subnets are workable and should resolve during final schedule preparations and negotiations.



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – September (Weeks 36 - 39)



#### **EVENTS**

ATOT A01 Astrometry in week 37

Cassini Tour

Dawn DDOR in weeks 36, 38 and 39

EPOXI DDOR in weeks 36 and 38, TCM

GSSR Asteroid 2000 DP10 in week 37 and Asteroid 1998 UO1 in week 38 and 39

Mars Odyssey Phoenix Relay

Mars Express Orbital Occultation, Phoenix Relay

MRO Ka Ops Demo, X/Ka-DDOR in week 37

MESSENGER Delta DOR in week 36 and 37 and TCM in week 36 and 38

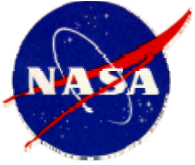
Rosetta Asteroid Rhod Flyby

SOHO TSO in week 39

Voyager 1 MAGROL in week 38

Voyager 2 ASCAL in week 37 and MAGROL in week 37

WIND TCM in week 37



# Resource Allocation Review Events, Recommendations and Analyses

2008 – September (Weeks 36 - 39)



## RECOMMENDATIONS

M01O Relay delete 7 passes at 70M.



# **Resource Allocation Review Events, Recommendations and Analyses**

**2008 – September (Weeks 36 - 39)**

---

## **ANALYSES**

- 1. (70M) The projected unsupportable time is moderate for M01O, MEX, MRO and PHX in this period due to oversubscription of the MARS viewperiod during PHX Mars Approach and EDL.**

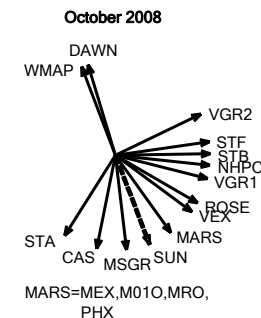
**Contention levels on the 34BWG1, 34BWG2, 34HEF 34HSB and 26M subnets are workable and should resolve during final schedule preparations and negotiations.**



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – October (Weeks 40 - 44)



#### EVENTS

DSS-43 approved downtime (Life Extension) beginning in week 40

DSS-46 approved downtime (Extended Downtime) beginning in week 40

DSS-66 approved downtime (Extended Downtime) beginning in week 40

#### Cassini Tour

Dawn Cruise Coasting; Delta DOR

EXPOxI Approach begins in week 41

EGS Calibration in week 42, EVN J-M5 in week 43, Global VLBI in week 44

LCRO Transfer Cruise in weeks 44 – 45

LRO Launch and Early Orbit Phase week 44

Mars Odyssey Relay

Mars Express Orbital Occultation/ M01O Relay

Mars Reconnaissance Orbiter Prime Science/M01O Relay; X/Ka Delta DOR in week 41

MESSENGER Delta DOR and Mercury Flyby #2 in weeks 41 – 42, TCM in weeks 41, 44

NHPC Checkout, Delta DOR in weeks 40 – 41, Maneuver in week 41



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – October (Weeks 40 - 44) (Continued)

#### EVENTS

SGP Crustal Dynamics B-M4 in week 42, W-M4 in week 43, H-M4 in week 44

SOHO TSO in week 42

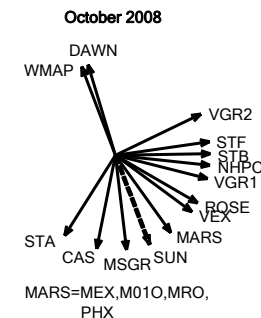
Stereo Ahead HGA CAL in week 40

Stereo Behind HGA CAL in week 40

Voyager 1 MAGROL Overlay in week 40, DTR Array in week 43, ASCAL in week 44,  
MAGROL on DOY 305

Voyager 2 BLF in week 44, MAGROL on DOY 296

WMAP Maneuver in week 41







# Resource Allocation Review Events, Recommendations and Analyses



2008 – October (Weeks 40 - 44) (continued)

---

## RECOMMENDATIONS

DSS Maintenance delete 1 of 2 maintenance blocks at DSS-14 in each week 41 and 44. (1,4)

EGS Global VLBI move 24-hour Array support from week 44 to week 39. (1,4)

M01O Relay MSPA with MRO Prime Science at DSS-14,63 change 3 of 3 passes to standalone passes and delete M01O passes. M01O Relay delete 4 passes week at DSS-26,45,54 and DSS-14,63. M01O Relay MSPA with MRO Prime Science move from DSS-25,34,55 to DSS-25,55. M01O Relay MSPA with MEX Orbital Science/Occultation move 7 passes from 34H,70M to 34H,DSS-25,55 in weeks 41 and 44. (1,3,4)

MEX Orbital Science/Occultation MSPA with M01O Relay move 7 passes from 34H,70M to 34H,DSS-25,55 in weeks 41 and 44. (1,4)

MRO Prime Science MSPA with M01O Relay at DSS-14,63 change 3 of 3 passes to standalone passes and delete M01O passes. MRO Ka Ops Demo move from DSS-25,34,55 to DSS-25,55. MRO Prime Science MSPA with M01O Relay move from DSS-25,34,55 to DSS-25,55. (3,4)

☺ NHPC Maneuver move support from week 41 at DSS-14,63 to week 38 at 70M. (1)

☺ SOHO Move 8-hour and 9.6-hour supports from DSS-27,45,65 to DSS-24,27,45,54,65 in weeks 41 – 44. SOHO TSO move support from DSS-27,45,65 to DSS-24,27,45,54,65 in week 42. (2,4)



# **Resource Allocation Review Events, Recommendations and Analyses**



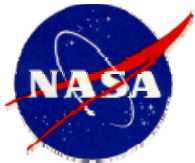
**2008 – October (Weeks 40 - 44) (continued)**

---

## **ANALYSES**

1. (70M) The projected unsupportable time is moderate to severe for CAS, CLU2, DSS Maintenance, EGS, M01O Relay, MRO Prime Science, MSGR TCM, NHPC Checkout, STF and VGR1 ASCAL, DTR Array and MAGROL. Contention is due to significant view period overlap of most missions, reduced Southern Hemisphere capacity, MSGR Flyby 2 and NHPC Maneuver.
2. (34HEF) The projected unsupportable time is moderate to severe for ACE, CLU2, DSS Maintenance, LCRO, MEX, MSGR, SOHO and VGR2. Contention is due to significant view period overlap of most missions, reduced Southern Hemisphere capacity and SOHO TSO.
3. (34BWG1) The projected unsupportable time is moderate to severe for ACE, CLU2, DSS Maintenance, MRO, STA and VGR2. Contention is due to significant view period overlap of most missions and reduced Southern Hemisphere capacity.
4. (SPC40) Supportability and capacity are reduced during the DSS-43 Life Extension downtime and DSS-46 decommissioning. Support from 70 meter antennas and remaining Canberra 34 meter antennas is limited. A severe viewperiod overlap exists with most DSN missions in this period increasing oversubscription of remaining assets.

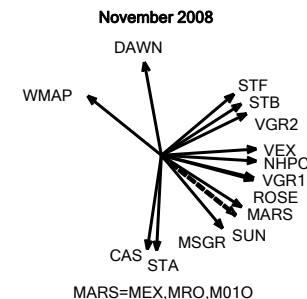
**Contention levels on the 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations**



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – November (Weeks 45 - 48)



#### **EVENTS**

DSS-43 approved downtime (Life Extension)  
DSS-46 approved downtime (Extended Downtime)  
DSS-66 approved downtime (Extended Downtime)

#### **Cassini Tour**

Chandra ACA Dark Current Measure in week 45, Leonid Pass in week 48

Dawn Cruise Coasting and Delta DOR

EPOXI Approach ends in week 47, TCM in week 45, Encounter with Comet Boethin begins in week 48

EGS EVN J-M5 in week 45

GBRA Host Country in week 48

GSSR Astrometry 4179 Toutatis in weeks 46 – 47

LCRO Orbit Cruise; Transfer Cruise ends in week 45

Mars Odyssey Relay

Mars Express Orbital Occultation/M01O Relay

Mars Reconnaissance Orbiter Prime Science/M01O Relay ends in week 47, Solar Conjunction begins in week 47, X/Ka-Delta DOR in week 45



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – November (Weeks 45 - 48) (Continued)

#### EVENTS

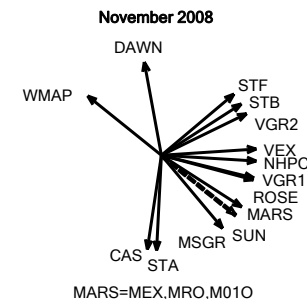
New Horizons Checkout ends in week 46

NExT Earth Gravity Assist, beginning in week 47

SGP Crustal Dynamics W-M4 in week 46, B-M4 in week 47, H-M4 in week 48

SOHO Keyhole in weeks 45 - 47, Keyhole Maneuver in week 46

Voyager 2 MAGROL Overlay in week 45





# Resource Allocation Review Events, Recommendations and Analyses



2008 – November (Weeks 45 - 48) (continued)

## RECOMMENDATIONS

☺ CAS Tour move 2 passes at DSS-14 to DSS-43 in week 46 and move 5 of 5 passes from DSS-15,45,55 to DSS-15,25,55,65 in week 45. (1,4)

M01O Relay at DSS-14,63 delete 7 of 7 passes in weeks 45 and 46 and 6 of 7 in week 47.

M01O Relay at DSS-14,63 move remaining 1 of 7 passes to DSS-14,15,63 and MSPA with MEX R/S Solar Corona at 70M in week 47 and 4 of 7 passes in week 48 and move to HEF. M01O Relay MSPA with MRO Prime Science at DSS-14,63 change to standalone and delete 3 M01O Relay passes and move 3 of 3 standalone MRO Prime Science passes to 34HEF in week 45 and 46. M01O Relay MSPA with MRO Prime Science move 2 of 6 passes to 34HEF in week 47. M01O Relay at DSS-26,45,54, MSPA with MRO Solar Conjunction at DSS-25,34,55 6 of 7 passes in week 47 and 7 of 7 passes in week 48 and move to DSS-26,55. M01O Relay MSPA with MRO Prime Science move from DSS-25,34,65 to DSS-25,65 in weeks 45 and 46. M01O Relay MSPA with MRO Prime Science move from DSS-25,34,55 to 34B2 in weeks 45 and 46. (1,4)

MEX R/S Solar Corona at 34HEF and 70M move 7 of 7 passes to DSS-14,15,63 MSPA with 1 with M01O Relay at DSS-14,63 in week 48. (1,4)



# Resource Allocation Review Events, Recommendations and Analyses

2008 – November (Weeks 45 - 48) (continued)

## RECOMMENDATIONS

MRO Prime Science MSPA with M01O Relay at DSS-14,63 change to standalone and delete M01O Relay passes and move 3 of 3 standalone MRO Prime Science passes to 34HEF in week 45 and 46. MRO Prime Science MSPA with M01O Relay at DSS-14,63 move 2 of 6 passes to 34HEF in week 47. MRO Ka Ops Demo move 2 passes from DSS-25,34,55 to 34B2. MRO Solar Conjunction at DSS-25,34,55, MSPA with M01O Relay at DSS-26,45,54 6 of 7 passes in week 47 and 7 of 7 passes in week 48 and move to DSS-26,55. MRO Prime Science MSPA with M01O Relay move from DSS-25,34,65 to DSS-25,65 in weeks 45 and 46. MRO Prime Science MSPA with M01O Relay move from DSS-25,34,55 to 34B2 in weeks 45 and 46. (1,2,3,4)

☺ SOHO Keyhole move 4 of 8 passes at DSS-15/27,54/65,34/45 to DSS-34,45,54,65 in weeks 45 and 47 and move 4 of 11 passes at DSS-14/27,63/65 to DSS-34,45,54,65 in week 46. SOHO move four of four 8-hour passes from DSS-27,45,65 to DSS-27,54,65 in week 45 and move two of two 9.6-hour passes in week 45 and 7 of 7 passes in week 48 from DSS-27,45,65 to DSS-27,54,65. (1,2,3,4)

☺ STB Prime Science move 6 of 7 passes from DSS-26,34,54 to DSS-26,54 and remaining 1 pass to DSS-34. (3,4)

VGR2 delete 3 of 5 passes at DSS-34,45 in weeks 45 and 48. (2,3,4)



# Resource Allocation Review Events, Recommendations and Analyses



**2008 – November (Weeks 45 - 48) (continued)**

---

## **ANALYSES**

1. (70M) The projected unsupportable time is moderate to extreme for CLU2, DSS Maintenance, Cassini Tour, GSSR Asteroid 4179 Toutatis, M01O Relay, MEX R/S Solar Corona, MRO Prime Science, NHPC Checkout and Cruise/Telemetry, SOHO Keyhole and STF. Contention is due to significant view period overlap of most missions, reduced Southern Hemisphere capacity, GSSR Asteroid and SOHO Keyhole.
2. (34HEF) The projected unsupportable time is moderate to extreme for ACE, CLU2, EPOXI, DSS Maintenance, M01O, MEX, MRO, MSGR Cruise, SOHO and VGR2. Contention is due to significant view period overlap of most missions, reduced Southern Hemisphere capacity EPOXI Approach, Encounter DDOR and TCM, NEXT EGA and SOHO Keyhole.
3. (34BWG1) The projected unsupportable time is moderate to extreme for ACE, CAS Tour, CLU2, EPOXI, DSS Maintenance, IMAG, M01O, MEX, MRO, MSGR, SOHO STA, STB, STF, VGR2 and WMAP. Contention is due to significant view period overlap of most missions, reduced Southern Hemisphere capacity EPOXI Approach, Encounter DDOR and TCM, NEXT EGA and SOHO Keyhole.
4. (SPC40) Supportability and capacity are reduced during the DSS-43 Life Extension downtime and DSS-46 decommissioning. Support from 70 meter antennas and remaining Canberra 34 meter antennas is limited. A severe viewperiod overlap exists with most DSN missions in this period increasing oversubscription of remaining assets.





# **Resource Allocation Review Events, Recommendations and Analyses**

**2008 – November (Weeks 45 - 48) (continued)**

---

## **ANALYSES**

**Contention levels on the 34BWG2 and 34HSB subnet is workable and should resolve during final schedule preparations and negotiations**

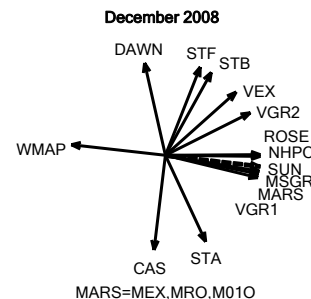




# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – December (Weeks 49 - 52)



#### **EVENTS**

DSS-43 approved downtime (Life Extension)  
DSS-46 approved downtime (Extended Downtime)  
DSS-66 approved downtime (Extended Downtime)

Cassini Tour

Chandra Earth Eclipse in weeks 50 – 52

Dawn Cruise Coast and Delta DOR

EPOXI Encounter with comet Boethin ends in week 50, TCM in week 50, Playback in weeks 51 – 52

Hayabusa MUSES-C Orbit Determination in week 51

LCRO Orbit Cruise

Mars Odyssey Relay

Mars Express Orbital Occultation/M01O Relay

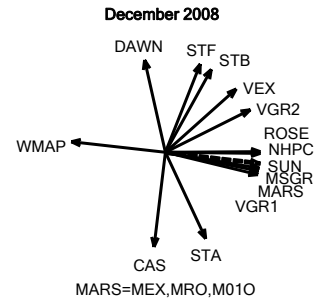
Mars Reconnaissance Orbiter Relay in week 52, Solar Conjunction ending in week 51, X/Ka-Delta DOR in week 52



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – December (Weeks 49 - 52) (Continued)



#### EVENTS

**MESSENGER DSM-4 in week 49**

**New Horizons Maneuver in weeks 50 – 51, Solar Conjunction in weeks 51 – 52**

**NExT Earth Gravity Assist; TCM in weeks 50 & 51**

**SGP Crustal Dynamics H-M4 in week 50, B-M4 and W-M4 in week 51**

**SOHO TSO in week 50**

**Wind TCM in week 50**



# Resource Allocation Review Events, Recommendations and Analyses



2008 – December (Weeks 49 - 52) (continued)

---

## RECOMMENDATIONS

DIF Encounter move 17 of 17 8-hour passes at DSS-26,34,54 to DSS-25,26,34,54 in week 49. (3,4)

GSSR Venus GBT move 3 of 3 supports from DSS-14 from DOY 336 – 338 in week 49 to DOY 347 – 349 of week 50. (1,4)

M01O Relay at 34H,34B2 MSPA with MEX R/S Solar Corona at 34H and move to DSS-15,65. (2,4)

MEX R/S Solar Corona at 34H MSPA with M01O Relay at 34H,34B2 and move to DSS-15,65. (2,4)

MRO Solar Conjunction move from DSS-25,34,55 to DSS-25,55. (3,4)

SOHO TSO delete 3 of 15 passes and move remaining 12 from DSS-27,45,65 to DSS-27,45,65,34B1. (2,3,4)

☺ STB Prime Science move 6 of 7 passes from DSS-26,34,54 to DSS-26,54 and remaining 1 pass to DSS-34 in week 49 and 50. (3,4)

VGR2 Delete 2 of 7 passes in week 49 and 50. (3,4)



# Resource Allocation Review Events, Recommendations and Analyses

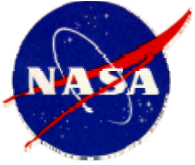


2008 – December (Weeks 49 - 52) (continued)

---

## ANALYSES

1. (70M) The projected unsupportable time is moderate to severe for CLU2, DSS Maintenance, EPOXI Encounter, GSSR Venus GBT, M01O Relay, MEX Orbital Science, MSGR DSM-4, Hayabusa Orbit Determination and NHPC Maneuver and Cruise/Telemetry. Contention is due to significant view period overlap of most missions, reduced Southern Hemisphere capacity, EPOXI Encounter, GSSR Venus GBT, Hayabusa and NHPC Maneuver.
2. (34HEF) The projected unsupportable time is moderate to extreme for CLU2, DSS Maintenance, M01O, MEX, MSGR, SOHO, VGR2 and Wind. Contention is due to significant view period overlap of most missions, reduced Southern Hemisphere capacity M01O Relay, MEX Solar Corona and SOHO TSO.
3. (34BWG1) The projected unsupportable time is moderate to extreme for ACE, CLU2, EPOXI, DSS Maintenance, MRO, MSGR, STA, STB, STF, VGR2 and WMAP. Contention is due to significant view period overlap of most missions, reduced Southern Hemisphere capacity EPOXI Encounter and Playback, MRO Solar Conjunction and NEXT EGA.
4. (SPC40) Supportability and capacity are reduced during the DSS-43 Life Extension downtime and DSS-46 decommissioning. Support from 70 meter antennas and remaining Canberra 34 meter antennas is limited. A severe viewperiod overlap exists with most DSN missions in this period increasing oversubscription of remaining assets.



# **Resource Allocation Review Events, Recommendations and Analyses**

**2008 – December (Weeks 49 - 52) (continued)**

---

## **ANALYSES**

**Contention levels on the 34BWG2 and 34HSB subnet is workable and should resolve during final schedule preparations and negotiations**



# **Resource Allocation Review Events, Recommendations and Analyses**



## **2009 Events, Recommendations and Analyses**

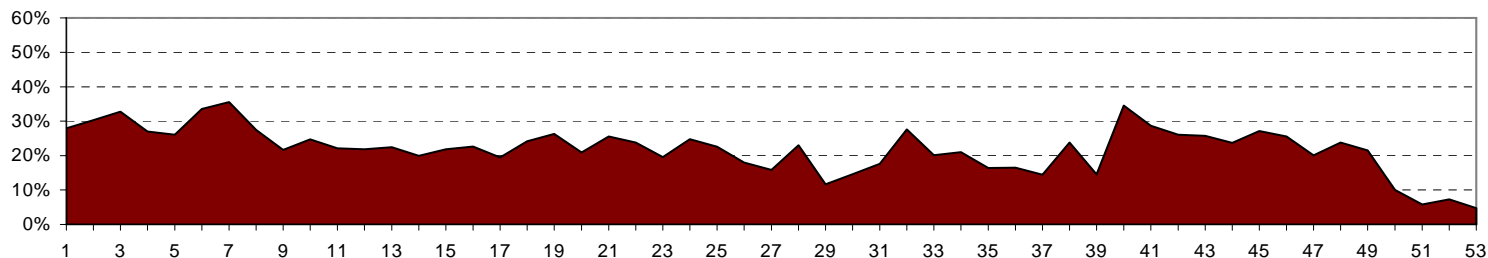


# Resource Allocation Review

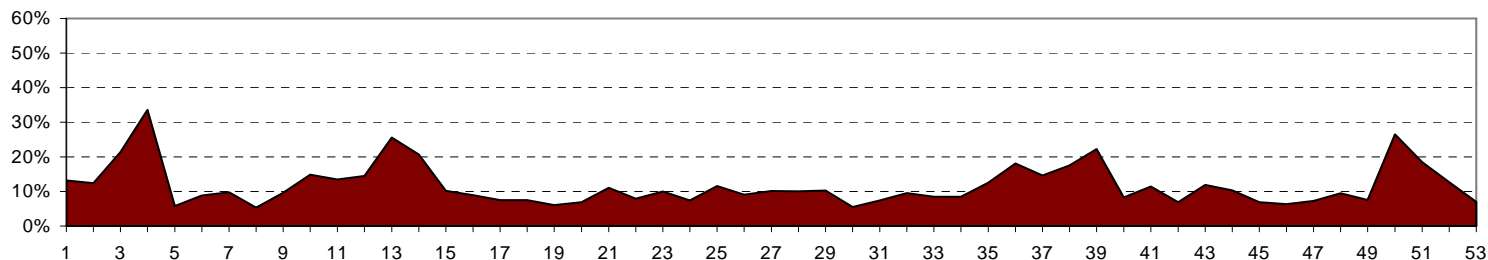
## Events, Recommendations and Analyses

### 2009 Weekly Average User Unsupportable Time

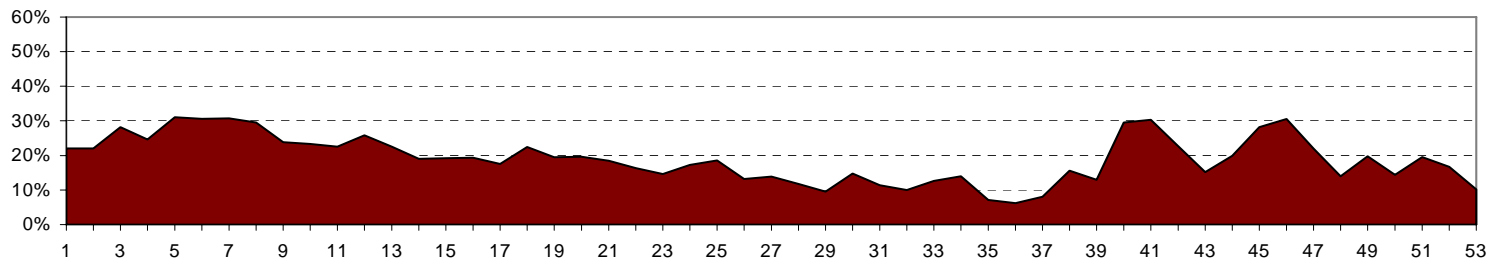
70M



34HEF



34BWG1



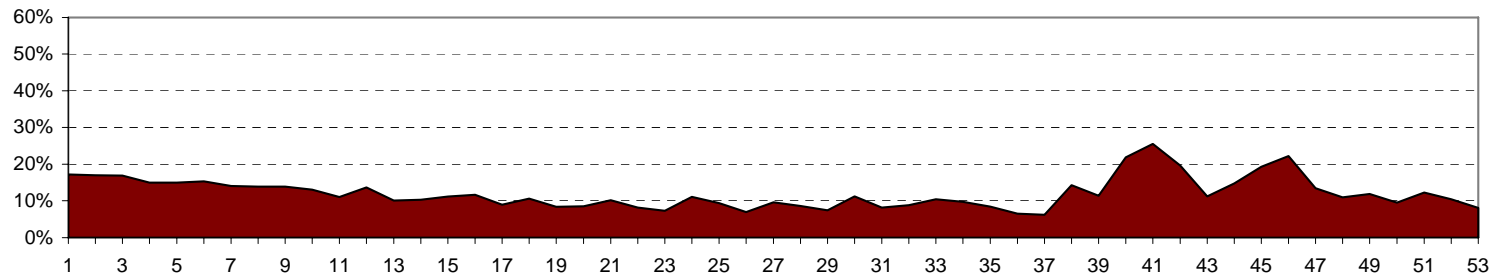


# Resource Allocation Review

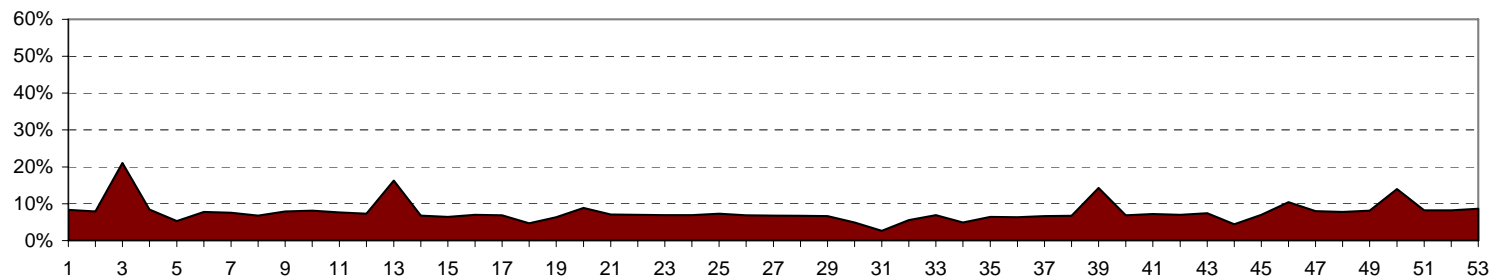
## Events, Recommendations and Analyses

### 2009 Weekly Average User Unsupportable Time

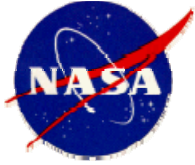
34BWG2



34HSB



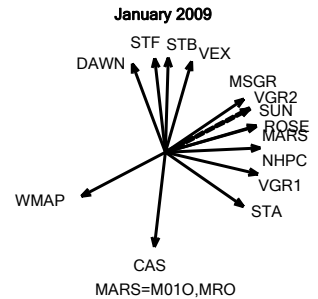




# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – January (Weeks 01 - 05)



#### EVENTS

DSS-43 approved downtime (Life Extension)  
DSS-46 approved downtime (Extended Downtime)  
DSS-66 approved downtime (Extended Downtime)

Cassini Tour

Dawn Delta DOR and Mars G/A

EPOXI Playback in week 01

GBRA Host Country in weeks 02, 04

GSSR Asteroid 1998 CS1 in weeks 03 – 04, GODR in week 01, 03, 05, Mercury GBT in week 03

LCRO Impact Target in week 05

Mars Reconnaissance Orbiter Relay

MESSENGER TCM in week 03

NExT Earth Gravity Assist, TCM-2 in week 02, Swingby on DOY 013

NHPC Cruise/Telemetry in week 02



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – January (Weeks 01 - 05) (Continued)

#### **EVENTS**

SGP Crustal Dynamics H-M4 in week 02, B-M4 in week 03, W-M4 in week 04

SOHO TSO in week 03, Keyhole beginning in week 05

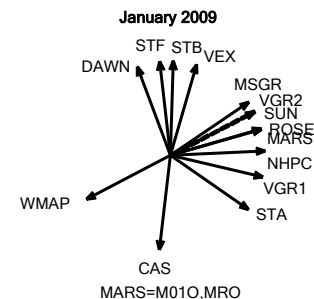
Stereo Ahead HGA CAL in week 02

Stereo Behind HGA CAL in week 02

Voyager 1 SEQ A070 U/L, D/L CONF, U/L BU and D/L CONF BU in week 02

Voyager 2 BLF D/L in week 05 – 06

WMAP Maneuver in week 05 - 06





# Resource Allocation Review Events, Recommendations and Analyses



2009 – January (Weeks 01 - 05) (continued)

---

## RECOMMENDATIONS

M01O Mapping at DSS-14,63, MSPA with MRO Relay at DSS-25,26,34,55, 7 of 7 passes at DSS-14,63. (1,2)

MEX Orbital Science at DSS-14,15, MSPA with MRO Relay Complimentary at DSS-25,26,34,54,55, 7 of 7 passes at DSS-25,26,34,54,55 in weeks 01 – 02 and to 34HEF in weeks 03 - 05. (1,2)

MRO Relay at DSS-25,26,34,55, MSPA with M01O Mapping at DSS-14,63, 7 of 7 passes and move to DSS-14,63 and increase from 8 hours to 10 hours. MRO Relay Complimentary at DSS-25,26,34,54,55, MSPA with MEX Orbital Science at DSS-14,15, 7 of 7 passes and move to DSS-25,26,34,54,55 in weeks 01 – 02 and to 34HEF in weeks 03 - 05. (1,2)

☺ MSGR Cruise Move 3 of 3 passes at DSS-26,34,54 to DSS-25,26,54 in weeks 03 - 05. (2)

☺ SDU EGA move 10 of 10 passes from 34B1 to 34B1,34B2 in week 03. (2)

☺ SOHO Keyhole move 4 of 12 passes from 34B1 to DSS-14/27,65/63 in week 05. (2)

VGR2 reduce support at DSS-34,45 from 8 to 6 hours in weeks 03 – 05. (2)



# **Resource Allocation Review Events, Recommendations and Analyses**



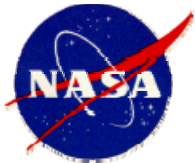
**2009 – January (Weeks 01 - 05) (continued)**

---

## **ANALYSES**

1. (70M) The projected unsupportable time is moderate to severe for CLU2, DSS Maintenance, GSSR Asteroid 1998 CS1 and Mercury GBT, M01O Mapping, MEX Orbital Science, SOHO Keyhole, STF and VGR1. Contention is due to significant view period overlap of most missions, reduced Southern Hemisphere capacity, GSSR Asteroid 1998 CS1.
2. (34BWG1) The projected unsupportable time is moderate to severe for ACE, DSS Maintenance, INTG, LCRO Approach and Impact, MRO Relay and Relay Complimentary, MSGR. SDU Earth Gravity Assist and TCM, SOHO Keyhole, STA, VGR2 and WIND. Contention is due to significant view period overlap of most missions and reduced Southern Hemisphere capacity SDU EGA and TCM, LCRO Approach and Impact and SOHO Keyhole.
3. (SPC40) Supportability and capacity are reduced during the DSS-43 Life Extension downtime and DSS-46 decommissioning. Support from 70 meter antennas and remaining Canberra 34 meter antennas is limited. A severe viewperiod overlap exists with most DSN mission in this period increasing oversubscription of remaining assets.

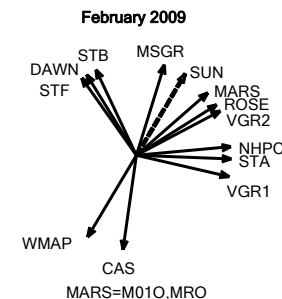
**Contention levels on the 34HEF, 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations**



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – February (Weeks 06 - 09)



#### **EVENTS**

DSS-43 approved downtime (Life Extension)  
DSS-46 approved downtime (Extended Downtime)  
DSS-66 approved downtime (Extended Downtime)

Cassini Tour

Dawn DDOR and Mars G/A

EGS Calibration and EVN J-M5 in week 07, Global VLBI in week 08

GBRA Host Country in weeks 06 – 09

GSSR GODR in weeks 05, 07 & 09, Asteroid 1999AQ10 in weeks 07 – 08

LCRO Impact in week 06, DOY 036

Mars Reconnaissance Orbiter X/Ka-DDOR in week 08, and Relay

NExT Earth Gravity Assist, ending in week 09

New Horizons Cruise/Telemetry in week 06

SGP Crust Dynamics B-M4 in week 06, H-M4 in week 08

SOHO Keyhole Maneuver in week 06, Keyhole ends week 08

Voyager 1 MAGROL on DOY 037

Voyager 2 BLF D/L week 06, SEQ D/L and D/L BU in week 07



# Resource Allocation Review Events, Recommendations and Analyses



2009 – February (Weeks 06 - 09) (continued)

---

## RECOMMENDATIONS

M01O Mapping at DSS-14,63, MSPA with MRO Relay at DSS-25,26,34,55, 7 of 7 passes at DSS-14,63. (1,2)

MEX Orbital Science at DSS-14,15, MSPA with MRO Relay Complimentary at DSS-25,26,34,54,55, 7 of 7 passes at 34HEF. (1,2)

MRO Relay at DSS-25,26,34,55, MSPA with M01O Mapping at DSS-14,63, 7 of 7 passes and move to DSS-14,63 and increase from 8 hours to 10 hours. MRO Relay Complimentary at DSS-25,26,34,54,55, MSPA with MEX Orbital Science at DSS-14,15, 7 of 7 passes and move to 34HEF. (1,2)

☺ MSGR Cruise Move 3 of 3 passes at DSS-26,34,54 to DSS-15,65. (2)

☺ SDU EGA Post Nav move passes from 34B1 to 34B2. (2)

☺ SOHO Keyhole move 4 of 12 passes from 34B1 to DSS-14\27,65\63 in week 09 and move support at DSS-14/27,34/45,63/65 to DSS-14/27,63/65. (2)

VGR2 delete 2 of 7 passes, move support at DSS-34,45 to DSS-45 and reduce from 8 to 6 hours. (2)



# Resource Allocation Review Events, Recommendations and Analyses



2009 – February (Weeks 06 - 09) (continued)

---

## ANALYSES

1. (70M) The projected unsupportable time is moderate to severe for CLU2, DSS Maintenance, EGS, GSSR Asteroid 1999 AQ10, M01O Mapping, MEX Orbital Science, SOHO Keyhole, STF and VGR1. Contention is due to significant view period overlap of most missions, reduced Southern Hemisphere capacity, Oversubscription in the MARS viewperiod, SOHO Keyhole.
2. (34BWG1) The projected unsupportable time is moderate to severe for ACE, CLU2, DSS Maintenance, LCRO Impact Targeting, MRO Relay and Relay Complimentary, MSGR, SDU Earth Gravity Assist, SOHO Keyhole, STA, STB, STF, VGR2 and WIND. Contention is due to significant view period overlap of most missions and reduced Southern Hemisphere capacity Dawn Mars Gravity Assist, KEPL LEOP, LCRO, Impact Targeting, SDU Earth Gravity Assist and SOHO Keyhole.
3. (SPC40) Supportability and capacity are reduced during the DSS-43 Life Extension downtime and DSS-46 decommissioning. Support from 70 meter antennas and remaining Canberra 34 meter antennas is limited. A severe viewperiod overlap exists with most DSN mission in this period increasing oversubscription of remaining assets.

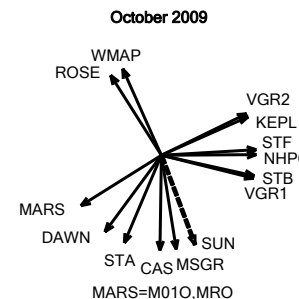
Contention levels on the 34HEF, 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – October (Weeks 40 - 44)



#### EVENTS

DSS-46 approved downtime (Extended Downtime)

DSS-66 approved downtime (Extended Downtime)

DSS-14 approved downtime (Life Extension)

DSS-65 proposed downtime for Life Extension Elevation in weeks 40 - 48

#### Cassini Tour

Dawn Cruise; DDOR in weeks 41 and 43

EGS Calibration and EVN J-M5 in week 43

GBRA Host Country in weeks 40, 42 – 44

M01O THEMIS beginning in week 40

Mars Reconnaissance Orbiter Relay in weeks 40 – 43, X/Ka-DDOR in week 40

MESSENGER DDOR in weeks 40 – 41, Mercury FB3 in weeks 40 – 41, TCM in weeks 40 and 43

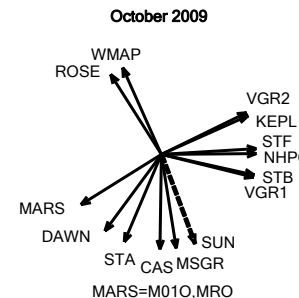
MSL Launch Support in weeks 40 – 42, ACS / NAV Cal and TCM in week 40, ACS / NAV Cout and FS C/01 in week 41, DDOR beginning in week 42, Inst C/O 1 in weeks 44 – 45





## **EVENTS**

# **Resource Allocation Review Events, Recommendations and Analyses 2009 – October (Weeks 40 - 44) (Continued)**



**New Horizons Checkout beginning in week 40, DDOR in week 40 – 41, Maneuver in week 42**

**Rosetta Earth Swingby beginning in week 44**

**SGP Crust Dynamics B-M4 in week 42, W-M4 in week 43, H-M4 in week 44**

**SOHO Keyhole beginning in week 44 - 47**

**Stereo Ahead HGA CAL in week 40**

**Stereo Behind HGA CAL in week 40**

**Voyager 1 MAGROL Overly in week 41, MAGROL Array beginning in week 44**

**Voyager 2 BLF beginning in week 44, MAGROL on DOY 301**

**Wind TCM in week 40**

**WMAP End of Extended Mission on DOY 273**



# Resource Allocation Review Events, Recommendations and Analyses



2009 – October (Weeks 40 - 44) (continued)

---

## RECOMMENDATIONS

DSS-65 approve proposed downtime for Life Extension beginning in week 40.

DSS Maintenance delete one 6-hour maintenance period in weeks 40,41 and 42. (1)

GBRA Host Country Move support from week 40 to week 43. (3)

M01O THEMIS 10-hour passes at DSS-43,63, MSPA 7 of 14 passes with MEX Orbital Science at DSS-14,15 and move to DSS-15,45 and MSPA with MRO Relay Comp at DSS-25,26,34,54,55 remaining 7 passes at DSS-43,63 and reduce all 14 passes to 8 hours. (1,2,3)

MEX Orbital Science at DSS-14,15, MSPA 7 of 7 passes with M01O THEMIS 10-hour passes at DSS-43,63 and move to DSS-15,45. (1,2)

MRO Relay Comp at DSS-25,26,34,54,55 MSPA 7 of 7 passes with M01O THEMIS 10-hour passes at DSS-43,63. MRO Relay passes at DSS-25,26,34,55 and DSS-25,26,45,55 Move to DSS-24,25,55. (1,2,3)

MSGR Mercury FB3 move 10 of 10 passes at 70M to DSS-24,43,63 in week 40 and 4 of 4 passes at DSS-43,63 to DSS-24,43,63 in week 41. **MSGR Cruise at 34H move support to DSS-15,45,55 and move support at DSS-26,45,65 to DSS-26,45,55. MSGR Delta DOR move support from DSS-15\65,15\45 to DSS-15\55,15\45. (1,2)**

☺ **MSL Launch Support move from DSS-26,34,54 to 34B1,34B2 in weeks 40 – 42. (3)**



# Resource Allocation Review Events, Recommendations and Analyses



2009 – October (Weeks 40 - 44) (continued)

---

## RECOMMENDATIONS

- ☺ NHPC Delta DOR move support from DSS-15\65,15\45 to DSS-15\55,15\45 (1,2)
  - ☺ SOHO move 9.6-hour passes from DSS-27,45,65 to DSS-27,54 and move 1.6 hour passes from DSS-27,45,65 to DSS-27,45,54. (2)
  - ☺ STA Extended Science move 6 of 7 passes from DSS-26,34,55 to DSS-34B2 and remaining 1 pass to DSS-34. (3)
  - ☺ STB Extended Science move 6 of 7 passes from DSS-26,34,54 to 34B2 and remaining 1 pass to DSS-34. (3)
- VGR2 move support at DSS-43,45,34 to DSS-43,45 in weeks 40 – 42 (3)



# Resource Allocation Review Events, Recommendations and Analyses

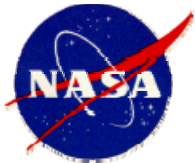
**2009 – October (Weeks 40 - 44) (continued)**

---

## **ANALYSES**

1. (70M) The projected unsupportable time is moderate to severe for CLU2, DSS Maintenance, M010 THEMIS, MRO Relay Complimentary, MSGR Mercury Flyby 3 and TCM, MSL TCM, NHPC Checkout and Maneuver, STF and VGR1 MAGROL Overlay. Contention is due to significant view period overlap of most missions, DSS-14 and DSS-65 downtime, MSGR Mercury Flyby 3 and MSL Launch support.
2. (34HEF) The projected unsupportable time is moderate to severe for CLU2, DSS Maintenance, MEX, MRO, SOHO and VGR2. Contention is due to significant view period overlap of most missions and DSS-14 and DSS-65 downtime.
3. (34BWG1) The projected unsupportable time is moderate to severe for ACE, CLU2, CAS Tour, CHDR, DSS Maintenance, GBRA Host Country, IMAG, MRO, MSL, STA, STF, VGR2 and WIND. Contention is due to significant view period overlap of most missions and DSS-14 and DSS-65 downtime and MSL Launch Support.

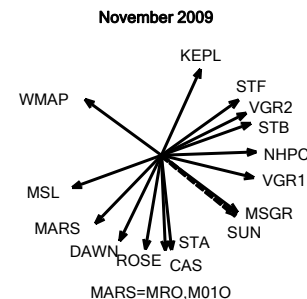
Contention levels on the 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – November (Weeks 45 - 48)



#### EVENTS

DSS-14 approved downtime (Life Extension)

DSS-46 approved downtime (Extended Downtime)

DSS-65 proposed downtime for Life Extension Elevation ending in week 48

DSS-66 approved downtime (Extended Downtime)

Cassini Tour

Chandra ACA D/C Measurement in week 45

Dawn Cruise; DDOR in weeks 45 & 47

EGS Global VLBI in week 45

GBRA Host Country in weeks 45 – 48

M010 THEMIS

Mars Reconnaissance Orbiter Relay; X/Ka-DDOR in week 48

Mars Science Laboratory 2009 Delta DOR; Instrument Checkout 1 ends in week 45, TCM in week 46

New Horizons Checkout ends week 46, Cruise/Telemetry in week 48

Rosetta Earth Swingby ends week 48



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – November (Weeks 45 - 48) (Continued)

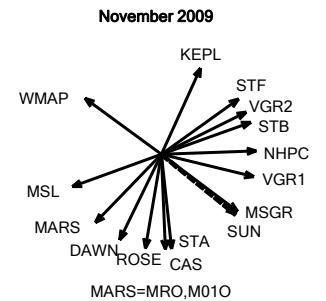
#### EVENTS

SGP Crust Dynamics W-M4 in week 46, B-M4 in week 47, H-M4 in week 48

SOHO Keyhole Maneuver in week 45, Keyhole ends week 46

Voyager 1 ASCAL Array in week 45, MAGROL Array ends week 45

Voyager 2 BLF ends in week 45, MAGROL Overlay in week 46





# Resource Allocation Review Events, Recommendations and Analyses



2009 – November (Weeks 45 - 48) (continued)

---

## RECOMMENDATIONS

DSS-65 approve proposed downtime for Life Extension ending in week 48.

M01O THEMIS 10-hour passes at DSS-43,63, MSPA with MEX Orbital Science at DSS-14,15 7 of 14 passes at DSS-43,63 and reduce passes to 8 hours. MSPA with MRO Relay Comp at DSS-25,26,34,54,55 remaining 7 passes at DSS-43,63. (1,2)

MEX Orbital Science at DSS-14,15, MSPA 7 of 7 passes with M01O THEMIS 10-hour passes at DSS-43,63 and move to DSS-43,63. (1)

MRO Relay Comp at DSS-25,26,34,54,55 MSPA 7 of 7 passes with M01O THEMIS 10-hour passes at DSS-43,63 and move to DSS-43,63. (1,2)

☺ **MSGR Cruise at DSS-26,34,54 move 7 of 7 passes to 34HEF. (2)**

VGR2 move support from DSS-43,45,34 to DSS-43,45 in weeks 45 – 47. (2)



# **Resource Allocation Review Events, Recommendations and Analyses**



**2009 – November (Weeks 45 - 48) (continued)**

---

## **ANALYSES**

1. (70M) The projected unsupportable time is moderate to severe for CLU2, DSS Maintenance, M01O THEMIS, MSL TCM, and VGR2. Contention is due to significant view period overlap of most missions, DSS-14 and DSS-65 downtime and oversubscription of the 70M subnet and MSL TCM.
2. (34BWG1) The projected unsupportable time is moderate to severe for ACE, CHDR, CLU2, DSS Maintenance, KEPL, MRO, MSGR, MSL, SOHO Keyhole, STA, STF, VGR2 and WIND. Contention is due to significant view period overlap of most missions and DSS-14 and DSS-65 downtime.

**Contention levels on the 34HEF, 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations**





# **Resource Allocation Review Events, Recommendations and Analyses**



## **2010 Events, Recommendations and Analyses**

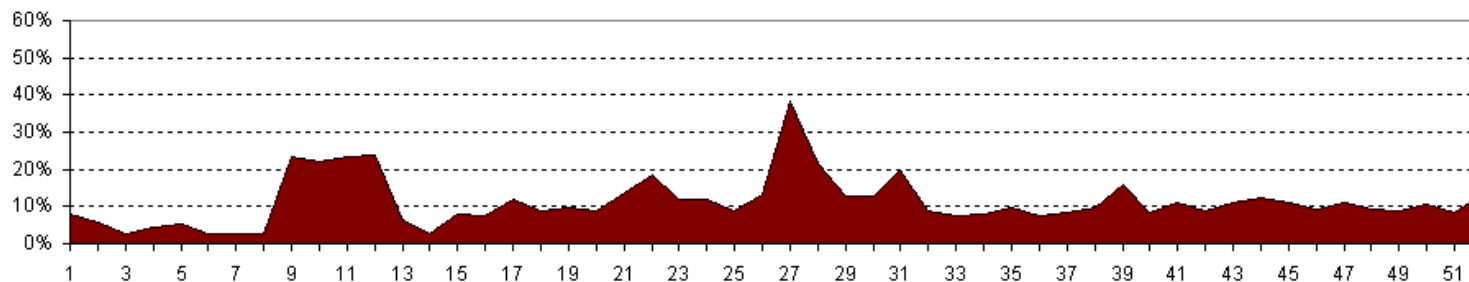


# Resource Allocation Review

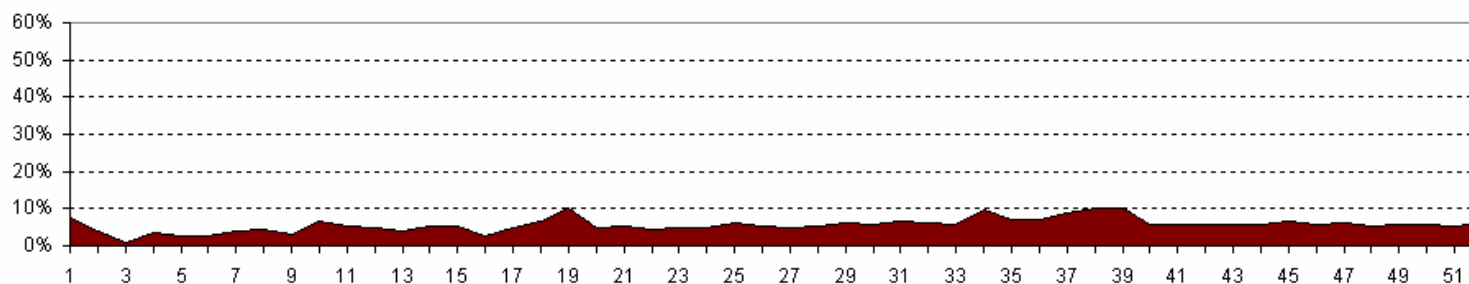
## Events, Recommendations and Analyses

### 2010 Weekly Average User Unsupportable Time

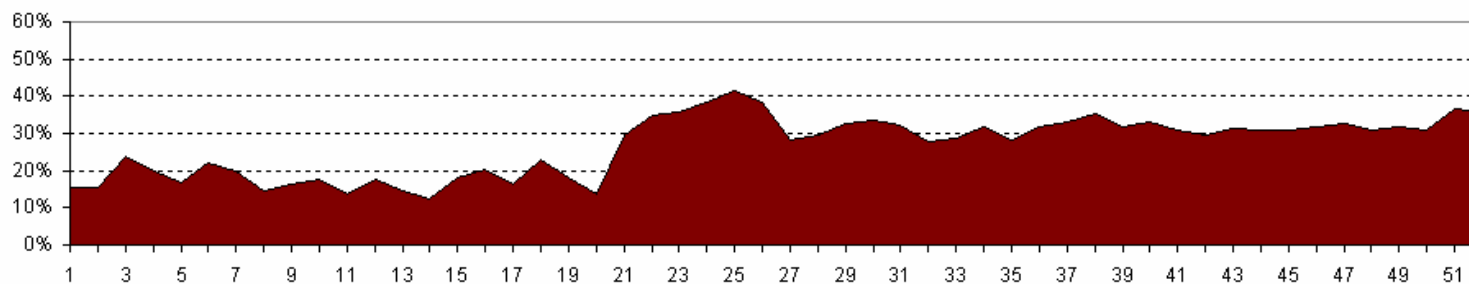
70M

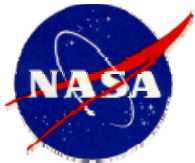


34HEF



34BWG1



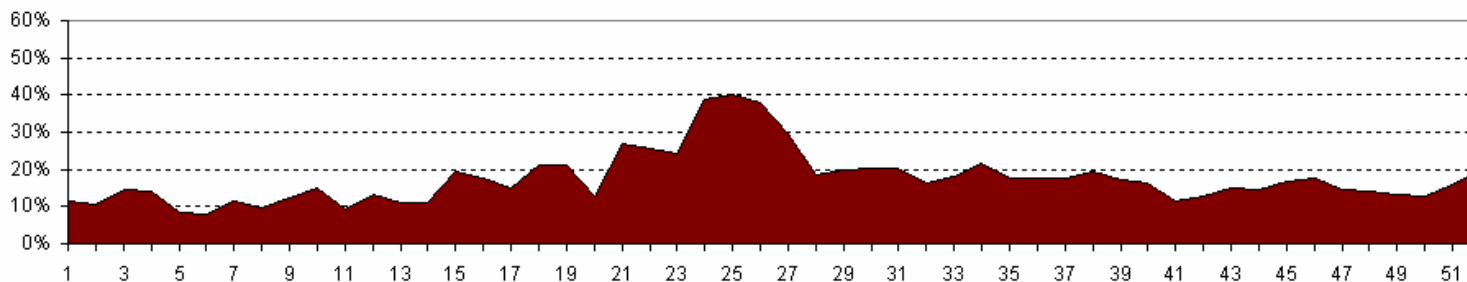


# Resource Allocation Review

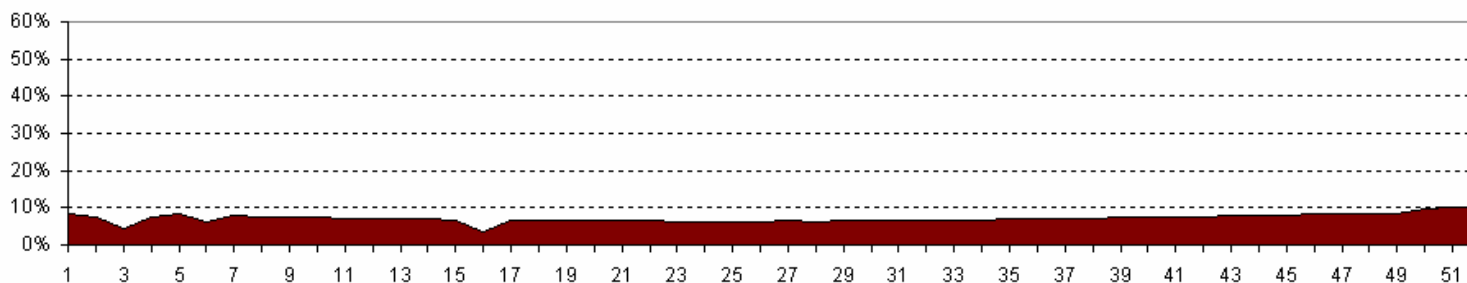
## Events, Recommendations and Analyses

### 2010 Weekly Average User Unsupportable Time

34BWG2



34HSB





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – April (Weeks 13 - 17)

#### EVENTS

DSS-25 proposed downtime (Ka Uplink Installation) in weeks 13 - 15

ATOT A01 Image

Cassini Tour

Dawn Delta DOR in weeks 14 and 16, Dawn Vesta Thrusting

EGS EVN J-M5 24 hour event at DSS-14\63 in week 13

GBRA Host Country in week 13

GSSR Mercury in week 17

Hayabusa Orbit Determination

Kepler Quarterly Roll in week 14

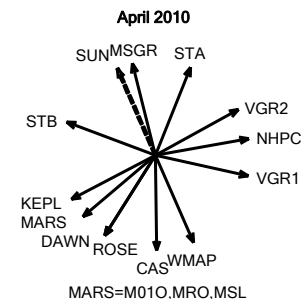
M010 THEMIS

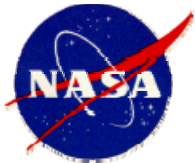
MRO Relay and Relay Complementary

MSGR TCM in week 15

MSL Delta DOR, Flight Software Update in week 15, Flight Software C/O 2 in week 17

NHPC Cruise/Telemetry in week 14





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – April (Weeks 13 - 17)

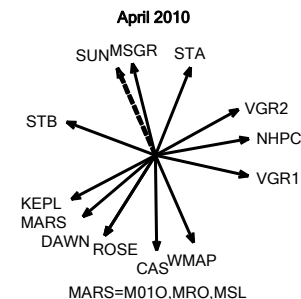
#### EVENTS

SOHO Keyhole in week 16

STA High Gain Antenna Calibration in week 14

STB High Gain Antenna Calibration in week 14

WIND TCM in week 14





# Resource Allocation Review Events, Recommendations and Analyses

2010 – April (Weeks 13 - 17) (continued)

---

## RECOMMENDATIONS

DSS approve proposed DSS-25 downtime for Ka Uplink Installation in weeks 13 – 15.

M01O THEMIS at 70M MSPA 7 of 14 passes with MRO Relay at DSS-25,26,34,55 and move to 70M.

MEX Orbital Science at 34H MSPA 7 of 7 passes with MRO Relay Complementary at DSS-25,26,34,54,55 and move to 34HEF.

MRO Relay at DSS-25,26,34,55 MSPA 7 of 7 passes with M01O THEMIS at 70M and move to 70M. MRO Relay Complementary at DSS-25,26,34,54,55 MSPA 7 of 7 passes with MEX Orbital Science at 34HEF and move to 34HEF.



# **Resource Allocation Review Events, Recommendations and Analyses**

**2010 – April (Weeks 13 - 17) (continued)**

---

## **ANALYSES**

1. (34BWG1) The projected unsupportable time is moderate for DSS Maintenance, GBRA Host Country, Kepler, MRO Relay and Relay Complimentary, MSL and Voyager 2. Contention is due to oversubscription in the Mars viewperiod.

Contention levels on the 70M, 34HEF, 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – May (Weeks 18 - 21)

#### EVENTS

Cassini Tour

Dawn Delta DOR, Vesta Thrusting

EGS Global VLBI Quarterly epoch at DSS-14\63 in week 21

GSSR Mercury beginning in week 21

Kepler Monthly Science in week 19

M01O THEMIS

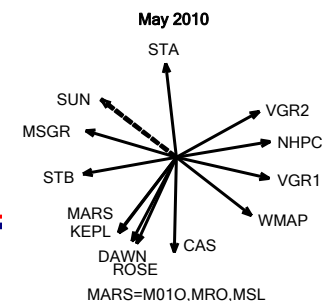
MRO Relay and Relay Complementary

MRO X/Ka Delta DOR in weeks 19 - 21

MSL Instrument Checkout 2 in week 18, TCM in week 19, Approach in week 21, Delta DOR.

Hayabusa Delta DOR E/W and N/S and Orbit Determination

NHPC Cruise/Telemetry in week 18







# Resource Allocation Review Events, Recommendations and Analyses

2010 – May (Weeks 18 - 21) (continued)

---

## RECOMMENDATIONS

KEPL Science Ops move from DSS-26,34,54 to 34B2 in week 21. (1,2)

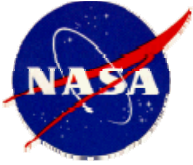
M01O THEMIS at 70M MSPA 7 of 14 passes with MRO Relay at DSS-25,26,34,55 and move to 70M. (1,2)

MEX Orbital Science at 34H MSPA 7 of 7 passes with MRO Relay Complementary at DSS-25,26,34,54,55 and move to 34H. (1,2)

MRO Relay at DSS-25,26,34,55 MSPA 7 of 7 passes with M01O THEMIS at 70M and move to 70M. MRO Relay Complementary at DSS-25,26,34,54,55 MSPA 7 of 7 passes with MEX Orbital Science at 34HEF and move to 34H. (1,2)

☺ MSL Approach at DSS-26,34,54 to 34B1 in week 21. (1,2)

☺ STB Extended Science move from DSS-26,34,54 to 34H. (1,2)



# **Resource Allocation Review Events, Recommendations and Analyses**

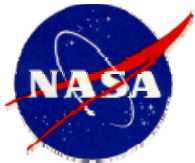
**2010 – May (Weeks 18 - 21) (continued)**

---

## **ANALYSES**

- 1. (34BWG1) The projected unsupportable time is moderate to Severe for ACE, DSS Maintenance, GBRA Host Country, INTEGRAL, Kepler, MRO Relay and Relay Complimentary, MSL, Stereo-B and Voyager 2. Contention is due to oversubscription in the Mars viewperiod.**
- 2. (34BWG2) The projected unsupportable time is moderate to Severe for DSS Maintenance, GBRA Host Country, Kepler, MRO Relay and Relay Complimentary, MESSENGER, MSL and Stereo-B. Contention is due to oversubscription in the Mars viewperiod.**

**Contention levels on the 70M, 34HEF and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations**



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – June (Weeks 22 - 25)

#### EVENTS

Cassini Tour

Dawn DDOR in weeks 22 and 24, Vesta Thrusting

EGS Calibration in week 22, EVN J-M5 24 hour event at DSS-14\63 in week 22

GSSR Asteroid 1999 MN in week 22, Mercury Observation ending in week 22, Venus GBT in week 24

Hayabusa Orbit Determination, ending week 3, Re-entry Trim in week 23 and Re-entry

Kepler Monthly Science in week 23

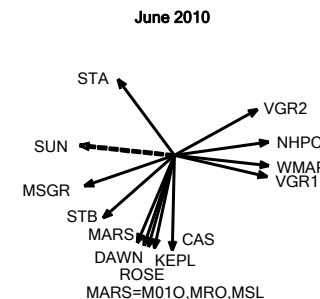
M01O THEMIS

MRO MSL Support, Relay Complementary and X/Ka Delta DOR

MSL Approach continuous coverage and MSL DDOR

NHPC Cruise/Telemetry in week 22

ROSE Asteroid Flyby beginning in week 23





# Resource Allocation Review Events, Recommendations and Analyses

2010 – June (Weeks 22 - 25) (continued)

## RECOMMENDATIONS

☺ ACE move support from DSS-27,34B1 to DSS-27,34H. (1,2)

INTG reduce support at DSS-24,27 from 12-hours to 8-hours. (1,2)

KEPL Science Ops, Monthly Science in week 23 move from DSS-26,34,54 to 34B2. (1,2)

M01O THEMIS at 70M MSPA 7 of 14 passes with MRO Relay at DSS-25,26,34,55 and move to 70M. (1,2)

MEX Orbital Science at 34H MSPA 7 of 7 passes with MRO MSL Support at 34B1 and move to 34H. (1,2)

MRO Relay at DSS-25,26,34,55 MSPA 7 of 7 passes with M01O THEMIS at 70M and move to 70M. MRO MSL Support at 34B1 MSPA 7 of 7 passes with MEX Orbital Science at 34HEF and move to 34H. (1,2)

☺ MSL Approach at DSS-26,34,54 to 34B1. (1,2)

☺ STB Extended Science move from DSS-26,34,54 to 34H. (1,2)



# **Resource Allocation Review Events, Recommendations and Analyses**

**2010 – June (Weeks 22 - 25) (continued)**

---

## **ANALYSES**

1. (34BWG1) The projected unsupportable time is moderate to Extreme for ACE, Cassini, Chandra, DSS Maintenance, GBRA Host Country, IMAGE, Kepler, MRO Relay and Relay Complimentary, MESSENGER, MSL, Hayabusa, Rosetta, Stereo-B, Spitzer, Voyager 2 and WIND. Contention is due to oversubscription in the Mars viewperiod, Requirements in support of MSL Approach and EDL and Hayabusa Re-Entry requirements.
2. (34BWG2) The projected unsupportable time is moderate to Extreme for Cassini, DSS Maintenance, Kepler, MRO Relay and Relay Complimentary, MESSENGER, MSL, Stereo-B and Voyager 1. Contention is due to oversubscription in the Mars viewperiod, Requirements in support of MSL Approach and EDL and Hayabusa Re-Entry requirements.

Contention levels on the 70M, 34HEF and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – July (Weeks 26 - 30)

#### EVENTS

Cassini Tour

CHDR ACA Dark Current Measurement in week 27

Dawn DDOR in weeks 26, 28 and 30, Vesta Thrusting

GBRA Host Country in week 27

Kepler Quarterly Roll in week 28

M010 THEMIS

MRO MSL Support, Relay Complementary and X/Ka-DDOR in week 26

MSL Approach continuous coverage, Delta DOR ending in week 27, TCM in week 26 and 27, EDL on DOY 191, Surface Ops beginning in week 27

NHPC Cruise/Telemetry in week 28 and Maneuver in week 30

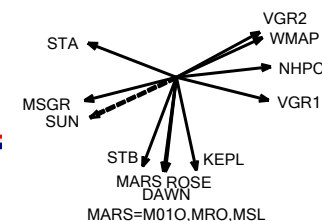
ROSE Asteroid Flyby ending in week 29

STA High Gain Antenna Calibration in week 28

STB High Gain Antenna Calibration in week 28

WIND TCM in week 27

July 2010





# Resource Allocation Review Events, Recommendations and Analyses

2010 – July (Weeks 26 - 30) (continued)

## RECOMMENDATIONS

GBRA Host Country 14-hour support at DSS-34 move from week 27 to week 20.

INTG reduce support at DSS-24,27 from 12-hours to 8-hours in week 26.

KEPL Science Ops, Quarterly Roll/Science Ops in week 28 move from DSS-26,34,54 to 34B2.

M01O THEMIS at 70M MSPA 7 of 14 passes with MRO Relay at DSS-25,26,34,55 and move 7 passes to 70M in weeks 26, 29 and 30 and 2 passes to 70M and 5 passes to 34BWG1 in week 27 and 5 passes to 70M and 2 passes to 34BWG1 in week 28. Move 7 standalone passes in week 27 and 2 in week 28 to 34BWG1.

MEX Orbital Science at 34H MSPA 7 of 7 passes with MRO MSL Support at 34B1 and move to 34H.

MRO Relay at DSS-25,26,34,55 MSPA 7 of 7 passes with M01O THEMIS at 70M and move 7 passes to 70M in weeks 26, 29 and 30 and 2 passes to 70M and 5 passes to 34BWG1 in week 27 and 5 passes to 70M and 2 passes to 34BWG1 in week 28. MRO MSL Support at 34B1 MSPA 7 of 7 passes with MEX Orbital Science at 34HEF and move to 34H.

☺ MSL Approach at DSS-26,34,54 to 34B1 in weeks 26 and 27.

☺ STB Extended Science move from DSS-26,34,54 to 34H.



# Resource Allocation Review Events, Recommendations and Analyses

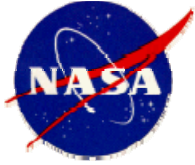
2010 – July (Weeks 26 - 30) (continued)

## ANALYSES

1. (34BWG1) The projected unsupportable time is moderate to Extreme for ACE, Cassini, Chandra, DSS Maintenance, GBRA Host Country, Hayabusa, IMAGE, Kepler, MRO Relay and Relay Complimentary, MESSENGER, MSL, Rosetta, Stereo-A, Stereo-B, Spitzer, Voyager 2 and WIND. Contention is due to oversubscription in the Mars viewperiod, Requirements in support of MSL Approach and EDL and Hayabusa Re-Entry requirements.
2. (34BWG2) The projected unsupportable time is moderate to Extreme for Cassini, DSS Maintenance, Kepler, MRO Relay and Relay Complimentary, MESSENGER, MSL, Stereo-B and Voyager 1. Contention is due to oversubscription in the Mars viewperiod, Requirements in support of MSL Approach and EDL and Hayabusa Re-Entry requirements.

Contention levels on the 70M, 34HEF and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations





# Resource Allocation Review Supplemental Materials



**Supplemental materials may be found on the  
Resource Allocation Planning Service (RAPS) Homepage at:  
<http://rapweb.jpl.nasa.gov>**

- ◆ **Ongoing Users Negotiated Requirements  
Individual User Loading Profiles**
- ◆ **Resource Allocation Review Information  
Supplemental Yearly Information**